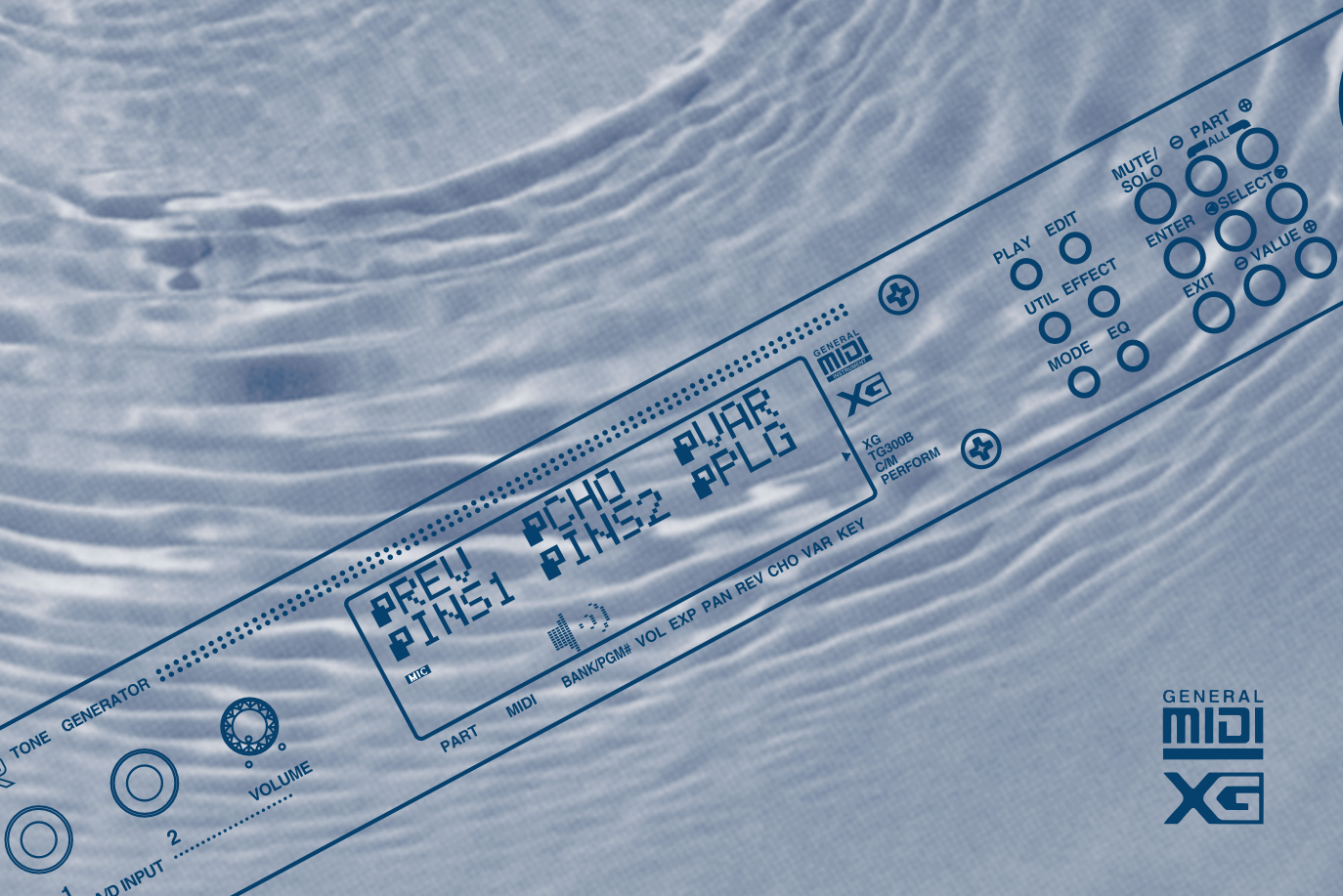


YAMAHA

MU100R

tone generator

OWNER'S MANUAL



GENERAL
MIDI
XG

FCC INFORMATION (U.S.A)

1. IMPORTANT NOTICE : DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the user's manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

If these corrective measures do not produce satisfactory results, please contact the your local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620

* The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

NEDERLAND / NETHERLAND

- Dit apparaat bevat een lithium batterij voor geheugen back-up.
- This apparatus contains a lithium battery for memory back-up.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat aan het einde van de levensduur afdankt of de volgende Yamaha Service Afdeling:
Yamaha Music Nederland Service Afdeling
Kanaalweg 18-G, 3526 KL UTRECHT
Tel. 030-2828425
- For the removal of the battery at the moment of the disposal at the end of the service life please consult your retailer or Yamaha Service Center as follows:
Yamaha Music Nederland Service Center
Address : Kanaalweg 18-G, 3526 KL UTRECHT
Tel : 030-2828425
- Gooi de batterij niet weg, maar lever hem in als KCA.
- Do not throw away the battery. Instead, hand it in as small chemical waste.

ADVARSEL!

Lithiumbatteri—Eksplodingsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandoren.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SPECIAL MESSAGE SECTION

This product utilizes batteries or an external power supply (adapter). DO NOT connect this product to any power supply or adapter other than one described in the manual, on the name plate, or specifically recommended by Yamaha.

WARNING: Do not place this product in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! If you must use an extension cord, the minimum wire size for a 25' cord (or less) is 18 AWG. NOTE: The smaller the AWG number, the larger the current handling capacity. For longer extension cords, consult a local electrician.

This Product should be used only with the components supplied or; a cart, rack, or stand that is recommended by Yamaha. If a cart, etc., is used, please observe all safety markings and instructions that accompany the accessory product.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

This product, either alone or in combination with an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist. **IMPORTANT:** The louder the sound, the shorter the time period before damage occurs.

Some Yamaha products may have benches and/or accessory mounting fixtures that are either supplied with the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that benches are stable and any optional fixtures (where applicable) are well secured BEFORE using. Benches supplied by Yamaha are designed for seating only. No other uses are recommended.

NOTICE: Service charges incurred due to lack of knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

ENVIRONMENTAL ISSUES: Yamaha strives to produce products that are both user safe and environmentally

friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice: This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

This Product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

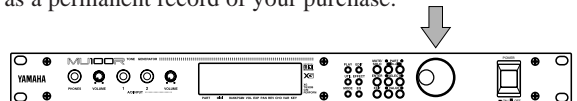
When installing batteries, do not mix old batteries with new, or with batteries of a different type. Batteries MUST be installed correctly. Mismatches or incorrect installation may result in overheating and battery case rupture.

Warning: Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area.

Note: Check with any retailer of household type batteries in your area for battery disposal information.

Disposal Notice: Should this Product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc. If your dealer is unable to assist you, Please contact Yamaha directly.

NAME PLATE LOCATION: The name Plate is located on the top of the product. The model number, power requirements, etc., are located on this plate. (The serial number is located on the rear panel.) You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.



Model _____

Serial No. _____

Purchase Date _____

PLEASE KEEP THIS MANUAL

Welcome to the MU100R

Congratulations and thank you for purchasing the Yamaha MU100R Tone Generator!

The MU100R is an advanced tone generator providing an amazing total of **1523 high-quality Voices**, full **General MIDI compatibility** — including Yamaha's new **XG-MIDI (Extended General MIDI)** — plus flexible **computer interfacing** in a compact, easy-to-use rack mount unit.

Included in the 1523 Voices are 256 extraordinarily realistic and expressive VL Voices — provided by a separate, yet integrated Virtual Acoustic Synthesis tone generator.

With the convenient built-in **host computer interface** and **MIDI terminals**, the MU100R is ideal for any computer music system — from connection to a simple laptop to integration in a complete MIDI studio. With its large LCD and the intuitive graphic controls on the display, the MU100R is remarkably easy to use.

The MU100R also features **completely independent dual MIDI inputs**, **32 Part multi-timbral capacity** and full **64-note polyphony** for playback of even the most sophisticated song data. A special **Performance mode** gives you flexible four-Voice operation, for live performance applications. Also built into the system are six **digital multi-effects** and two EQ sections (one per-part, and one overall), which give you enormous versatility in “sweetening” the sound. What's more, the MU100R provides a host of comprehensive, yet easy-to-use **editing tools** for getting just the sound you need.

The MU100R also has convenient **A/D inputs** that allow you to connect a microphone, electric guitar or other instrument, and mix those signals with the MU100R's Voices. A separate Harmony effect section lets you automatically apply two-, three- or four-part harmonies to your A/D input vocals, and have them change as you play different chords on a connected MIDI keyboard.

* Company names and product names in this Owner's Manual are the trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Unpacking

Your MU100R package should include the items listed below. Make sure that you have them all. Also, write down the serial number of your MU100R in the box below, for future reference.

MU100R	Serial No.:
PA-5B AC Power Adaptor	
Owner's Manual	
Floppy Disk	

Table of Contents

Welcome to the MU100R	ii
Unpacking	iii
Table of Contents	iv
How to Use This Manual	viii
PRECAUTIONS	ix
 The Controls of the MU100R	1
Front Panel	1
Rear Panel	3
The MU100R — What It Is and What It Can Do	4
What It Is...	4
About General MIDI	4
About XG-MIDI	5
What It Can Do...	5
Using With MIDI Keyboard	5
Using With a Computer or Sequencer	5
About the Modes of the MU100R	6
Play Modes and the Part Controls	7
Part Edit Mode	7
Utility Mode	7
Modes and Function Tree	8

GUIDED TOUR

Setting Up Your MU100R	12
What You'll Need	12
Making the Connections	12
Powering Up	14
Playing the Demo Song	15
Setting Up the MU100R in Your Music System	17
Connecting to MIDI Devices	17
Connecting Directly to a Computer	19
Macintosh and Compatibles	19
IBM PC/AT and Compatibles	21
Selecting and Playing the Performances	23
Calling Up the Performance Play Mode and Playing the Performances	23
Selecting and Playing Individual Voices	26
Calling Up the XG Mode	26
Selecting Voice Banks and Voices From the Panel	27
Selecting Voices From a MIDI Keyboard	31
Editing in the Multi Mode	32
Single Part Controls	33
Changing the Volume and Pan settings of a Part	34
On Your Own... ..	35

Edit Menu Parameters	36
Changing the Filter and EG Settings of a Part	36
On Your Own...	38
Editing Drum Kits — with the Drum Setup Controls	39
Making Changes to Individual Drum Sounds — the "Drum" Parameters	40
On Your Own...	42
Editing in the Performance Mode	43
All Part Controls	44
Transposing the Overall Key of a Performance	45
Single Part Controls — Selecting Different Voices for the Performance	46
On Your Own...	47
Edit Menu Parameters — Creating a Two-Voice Layer	48
Setting Up a Keyboard Split	50
On Your Own...	51
Using the Assignable Controller in a Performance	51
Saving Your Original Performance	52
Assignable Controller (AC1)	53
Controllers and Control Numbers	53
Control Numbers and the Actual Sound	54
Assigning the Assignable Controller	55
Using the Assignable Controller — Setting Up	56
Using the Assignable Controller — Some Applications	57
Changing the Brightness on a Piano Voice	57
Expressive Volume Control of a Part	59
Expressive Control of Individual Drum Sounds	59
On Your Own...	61
Playing and Editing VL Voices	62
About the VL Voice Section	62
Virtual Acoustic Synthesis	63
VA Advantages	63
VL Tone Generator Model	63
Voice Organization	67
Selecting VL Voice banks and VL Voices	69
Editing a VL Voice	71
Effects	73
Using Reverb and Chorus	73
Applying Distortion to a Part — Using the Variation Effects	75
Harmony Effect	77
Using the Harmony Effect	77
On Your Own...	79
Equalizer (EQ)	80
Adjusting the Tone of a Specific Part — Part EQ	80
Adjusting the Overall Tone — Main EQ	82
Individual Outputs	83
Using the Individual Outputs	83

Mute/Solo	85
Using Mute/Solo	85
A/D Inputs	87
Using the A/D Inputs	87
Data Flow Block Diagram	91
MIDI/Computer Connecting Cables	92

REFERENCE

Multi Mode	95
Part Controls	95
Single Part Control	96
All Part Control	98
Multi Edit Mode	100
Filter (FIL)	100
Envelope Generator (EG)	102
Equalizer (EQ)	105
Vibrato	106
Others	107
Drum Setup Controls	114
VL Voice Part Parameters (Plugin)	119
Performance Mode	127
Performance Part Control	128
All Part	128
Single Part	129
Performance Edit Mode	131
Common	131
Part	134
Copy and Store Operations	137
Copy	137
Store	138
Recall Function	140
Effect Edit Mode	141
Reverb (REV)	142
Chorus (CHO)	143
Variation (VAR)	144
Insertion 1, 2 (INS 1, 2)	146
Plugin (PLG) — Harmony Parameters	147
About the Effect Connections — System and Insertion	152
Equalizer (EQ) Edit	155

Utility Mode	156
System Functions (SYS)	157
Dump Out Functions (DUMP)	161
Saving and Restoring Data via MIDI	161
Saving and Restoring Data via TO HOST	161
Initialize Functions (INIT)	165
Demo Song Play (DEMO)	168
VL Voice and Harmony System Parameters (PLUGIN)	169
VL Voice System Parameters	169
Harmony System Parameters	171
Sound Module Mode (MODE)	172
Miscellaneous Functions	173
Show Control Change	173
Show Exclusive	175

APPENDIX

Troubleshooting	178
Error Messages	180
Specifications	181
Glossary	183
Index	185

How to Use This Manual

You are probably eager to try out your new MU100R Tone Generator right away and hear what it can do, rather than have to read through a lot of instructions before you can even get a sound out of it.

The structure of the manual is very straightforward. You can approach it in a linear manner, reading through from beginning to end, or on an “on-demand” basis, going directly to the information you need as you need it.

However, to get the most out of your MU100R, we strongly suggest that you read the following sections in the order given:

1) **Precautions**

This gives you important information on how to care for your new MU100R, how to avoid damaging it, and how to ensure long-term, reliable operation.

2) **The MU100R — What It Is and What It Can Do**

This briefly provides an overview of the functions and features of the MU100R and offers some important hints on how you can use it effectively. It also provides convenient page references so that you can easily find out about features and functions of interest.

3) **The Controls of the MU100R**

This section introduces you to the panel controls and connectors.

4) **Guided Tour**

This is perhaps the most important and valuable section of the manual. It gets you started using your new MU100R, helping you set up the instrument and play it — and it introduces you to virtually all of the important functions and features. The hands-on experience you gain in this section will help you quickly master the instrument and aid you in navigating the more detailed sections of the manual.

5) **Setting Up the MU100R in Your Music System;**

Using the MU100R with a Computer or Sequencer

These sections (within the Tutorial) provide all you need to know to effectively integrate the MU100R into your present computer music system.

6) **Reference**

Once you’re familiar with everything above, lightly go over this comprehensive guide to all editing functions. You won’t need (or want) to read everything at once, but it is there for you to refer to when you need information about a certain feature or function.

7) **Appendix**

Use the sections in the Appendix as necessary. For example, the Index will come in handy when you need to quickly find information on a specific topic. Other sections, such as the **Glossary**, **Troubleshooting** and **Error Messages** provide additional useful information.

8) **Sound List & MIDI Data booklet**

This separate booklet features lists of the Performances, Voices, drum sounds, effect types and parameters, as well as details on all relevant MIDI messages and data.

PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

* Please keep these precautions in a safe place for future reference.



WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not open the instrument or attempt to disassemble the internal parts or modify them in any way. The instrument contains no user-serviceable parts. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.
- Do not expose the instrument to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings.
- If the AC adaptor cord or plug becomes frayed or damaged, or if there is a sudden loss of sound during use of the instrument, or if any unusual smells or smoke should appear to be caused by it, immediately turn off the power switch, disconnect the adaptor plug from the outlet, and have the instrument inspected by qualified Yamaha service personnel.
- Use the specified adaptor (PA-5B or an equivalent recommended by Yamaha) only. Using the wrong adaptor can result in damage to the instrument or overheating.
- Before cleaning the instrument, always remove the electric plug from the outlet. Never insert or remove an electric plug with wet hands.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.



CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

- Do not place the AC adaptor cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.
- When removing the electric plug from the instrument or an outlet, always hold the plug itself and not the cord.
- Do not connect the instrument to an electrical outlet using a multiple-connector. Doing so can result in lower sound quality, or possibly cause overheating in the outlet.
- Unplug the AC power adaptor when not using the instrument, or during electrical storms.
- Before connecting the instrument to other electronic components, turn off the power for all components. Before turning the power on or off for all components, set all volume levels to minimum.
- Do not expose the instrument to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration or damage to the internal components.
- Do not use the instrument near other electrical products such as televisions, radios, or speakers, since this might cause interference which can affect proper operation of the other products.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Before moving the instrument, remove all connected adaptor and other cables.
- When cleaning the instrument, use a soft, dry cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths. Also, do not place vinyl or plastic objects on the instrument, since this might discolor the panel or keyboard.
- Do not rest your weight on, or place heavy objects on the instrument, and do not use excessive force on the buttons, switches or connectors.
- Do not operate the instrument for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.

■ REPLACING THE BACKUP BATTERY

- This instrument contains a non rechargeable internal backup battery which permits internal data to remain stored even when the power is off. When the backup battery needs replacing, the message "Battery Low!" will display in the display. When this happens, immediately back up your data (using an external device such as the floppy disk-based Yamaha MIDI Data Filer MDF2), then have qualified Yamaha service personnel replace the backup battery.
- Do not attempt to replace the backup battery yourself, in order to prevent the possible serious hazards. Always have qualified Yamaha service personnel replace the backup battery.
- Never place the backup battery in a location that a child can reach, since a child might accidentally swallow the battery. If this should happen, consult a physician immediately.

■ SAVING USER DATA

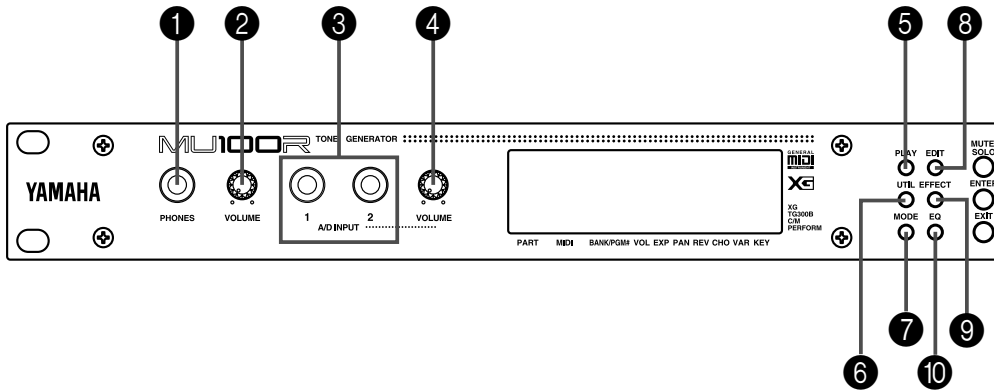
- Save all data to an external device such as the Yamaha MIDI Data Filer MDF2, in order to help prevent the loss of important data due to a malfunction or user operating error.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the instrument, or data that is lost or destroyed.

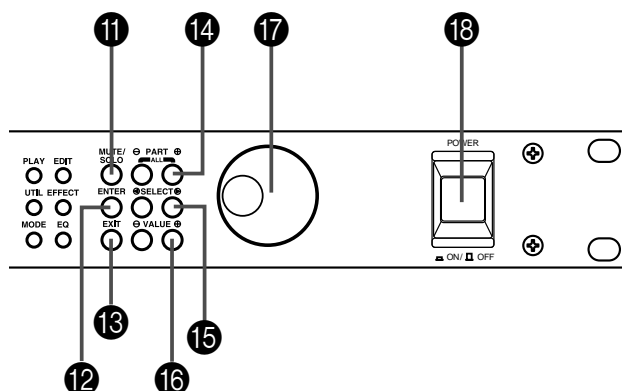
Always turn the power off when the instrument is not in use.

The Controls of the MU100R

Front Panel



- ① PHONES jack
For connection to a set of stereo headphones (1/4" plug).
- ② VOLUME control
For adjusting the overall volume of the MU100R.
- ③ A/D INPUT 1, 2 jacks
For connection of a microphone, electric guitar or other electronic instruments (mono 1/4" plugs).
- ④ A/D INPUT VOLUME control
For control of the level of the A/D inputs.
- ⑤ PLAY button
For entering the Play mode and switching among the different Play displays. (See page 24.)
- ⑥ UTIL (UTILITY) button
For entering the Utility mode. (See page 15.)
- ⑦ MODE button
For entering the Sound Module mode. (See page 23.)
- ⑧ EDIT button
For entering the Edit mode. (See page 36.)
- ⑨ EFFECT button
For entering the Effect Edit mode. (See page 74.)
- ⑩ EQ button
For entering the EQ Edit mode. (See page 82.)



11 MUTE/SOLO button

Pressing this alternately mutes or solos the selected Part. (See page 85.)

12 ENTER button

For calling up menu items in the display and for executing certain functions and operations. Double-clicking this (pressing it twice quickly) calls up the Show Exclusive function (see page 175).

13 EXIT button

For leaving various display pages and returning to previous displays. Also for canceling certain functions and operations.

14 PART \ominus/\oplus buttons

For selecting different Parts. In the Effect Edit mode, these can be used to switch among the different effects. Pressing these together alternately switches between All Part and Single Part control. (See page 48.)

15 SELECT $\blacktriangleleft/\blacktriangleright$ buttons

For selecting the various menu items, parameters and controls on the display.

16 VALUE \ominus/\oplus buttons

For changing the value of a selected parameter or control.

Hint

You can rapidly move through the values by holding down one of the [VALUE \ominus/\oplus] buttons. You can move even more rapidly by holding down one button and then pressing and holding down the other. For example, to rapidly advance (increase) the value, hold down the [VALUE \oplus] button and simultaneously press and hold down the [VALUE \ominus] button.

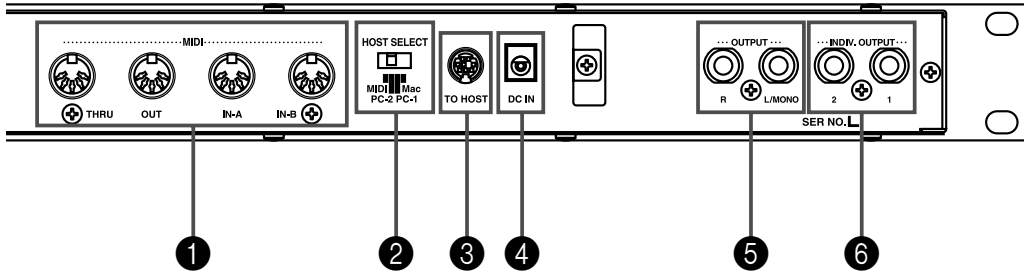
17 Data dial

For rapidly adjusting/changing values of the selected function or parameter. Rotate this clockwise to increase the value.

18 POWER switch

Pressing this turns the power on and off.

Rear Panel



① MIDI THRU, MIDI OUT and MIDI IN A/B terminals

For connection to other MIDI devices, such as a MIDI keyboard, tone generator, sequencer, or to a computer that has a MIDI interface. MIDI IN A and B are independent MIDI ports, allowing full 32-channel MIDI input. MIDI OUT is for data dumps to another MIDI device, while MIDI THRU is for “daisy-chain” connection of additional MU100Rs or other MIDI instruments. (See page 17 for more information on MIDI connections.)

② HOST SELECT switch

For selecting the type of host computer. (See page 19.)

③ TO HOST terminal

For connection to a host computer that does not have a MIDI interface. (See page 19.)

④ DC IN jack

For connection to the PA-5B AC power adaptor.

⑤ OUTPUT R, L/MONO jacks (Right, Left/Mono)

For connection to a stereo amplifier/speaker system. When using a mono system, connect it to the L/MONO jack.

⑥ INDIV. (Individual) OUTPUT 1, 2 jacks

For independent output of selected Parts (1/4” jack). Parts selected for output through these jacks are not output through the main OUTPUT or PHONES jacks. (See pages 113 and 118.)

The MU100R — What It Is and What It Can Do

What It Is...

The MU100R is a full-featured and easy-to-use tone generator, that provides an unprecedented wealth of Voices and expressive sonic control. It features full General MIDI Level 1 compatibility with 128 General MIDI Voices and 9 drum kits. It also provides new XG-MIDI (Extended General MIDI) compatibility, with an huge total of 1074 Voices and 36 drum kits. Moreover, it has an integrated VL tone generator that provides 256 stunning monophonic Voices utilizing Yamaha's sophisticated Virtual Acoustic Synthesis system.

The MU100R has 64-note polyphony and is 32-Part multi-timbral. In other words, the MU100R has 32 different Parts, each with its own Voice, so that up to 32 different Voices can be sounded simultaneously. Since the MU100R features dual MIDI input ports (A and B), 16 Parts can be played from one MIDI port and the remaining 16 from the other port.

Additional A/D Parts let you connect up to two external signals — such as a microphone, electric guitar or CD player — and mix them with the MU100R's Voices.

The MU100R also has a TO HOST terminal for easy interfacing with a computer, allowing you to play the Voices using your favorite music software. This is where the advanced multi-timbral capabilities come in, letting you playing sophisticated arrangements using up to 32 different Voices at the same time.

Although Voices cannot be directly edited, the various Part controls and Edit mode give you tools for transforming or customizing the sound of the Voices. What's more, the MU100R has a built-in multi-effect processor, with seven independent digital effect "units" for enhancing the sound. Included in these is a powerful Harmony section that allows you to generate realistic vocal harmonies with your actual voice (using one of the A/D Parts).

The MU100R also features a special Performance mode, in which four Parts are played simultaneously over a single MIDI channel. Connected to a MIDI keyboard, this effectively gives you four tone generators in one. The MU100R gives you 100 factory-programmed Preset Performances plus 100 Internal Performance locations for storing your own original Performances.

About General MIDI

General MIDI is a new addition to the worldwide MIDI standard. MIDI, as you know, stands for Musical Instrument Digital Interface, and makes it possible for various electronic musical instruments and other devices to "communicate" with each other. For example, by connecting a sequencer to the MU100R's MIDI IN terminal, you could play back a song on the sequencer using the Voices of the MU100R.

So, where does General MIDI fit in all of this? One of the most important features of General MIDI is in the standardization of Voices. This means that a song recorded in the General MIDI format can be played back on any General MIDI compatible tone generator and sound just as the composer intended. For example, if there is an alto sax solo in the song, it will be played by an alto sax Voice on the General MIDI tone generator (and not by a tuba or harpsichord!). Since the MU100R is fully compatible with General MIDI, you can take advantage of the vast wealth of musical material recorded in that format.

About XG-MIDI

The new XG format is an extension of General MIDI, and provides a number of significant improvements and enhancements. XG-compatible song data takes advantage of the extensive MIDI control and built-in effects of the MU100R (and other MU-series instruments).

To take greatest advantage of the powerful capabilities of XG-MIDI, we recommend using XG-compatible instruments and software. For example, XG-compatible keyboards such as the Yamaha CBX-K1 keyboard and software give you direct controls for accessing the full expressive potential of the MU100R's XG Voices and the XG-related parameters.

What It Can Do...

Here are a few ideas on how you can use the MU100R. The list below is not comprehensive, but is meant to be a general guide to the possibilities and provide a starting point or springboard for your own creative ideas and explorations.

Using With MIDI Keyboard

Use the MU100R as supplementary tone generator with your MIDI keyboard and play the Voices of both instruments in a layer together. Or, use the convenient Performance mode, and play four Voices on the MU100R at once. You can split the four Voices across the keyboard, playing each from a different register. Or you can create sophisticated velocity splits, in which a different Voice is heard depending on how strongly you play the keyboard. Or use keyboard and velocity splits together for even greater flexibility.

Using With a Computer or Sequencer

Home Studio Setup

The MU100R integrates instantly and easily into any existing setup. If you have a MIDI keyboard, computer and sequencing software, the MU100R with its high-quality Voices and multi-timbral capabilities can expand your home studio system.

Carry It With You

If you have a laptop computer (and sequencing software), simply connect the MU100R, plug in some headphones and you've got a complete, high-powered music making system that's ready to go wherever you go. Use it for composing, arranging, practicing or making/playing demos for your band.

Use It on a Gig

Similarly, you can connect a laptop or a MIDI data filer and playback song data with the MU100R's Voices. Plug a microphone into one of the A/D inputs and a guitar into the other, and you can mix your own live performance with the sequencer tracks. What's more, you can produce automatic vocal harmonies with the Harmony effect — controlled either from a keyboard or directly from one of the sequencer tracks!

Multimedia

Since it's compatible with General MIDI and XG, the MU100R is a natural for multimedia applications. Bring it with you to a presentation — since the computer interface is built-in to the MU100R, it hooks up instantly and easily to the computer's serial port or printer port, without the need for any other equipment.

About the Modes of the MU100R

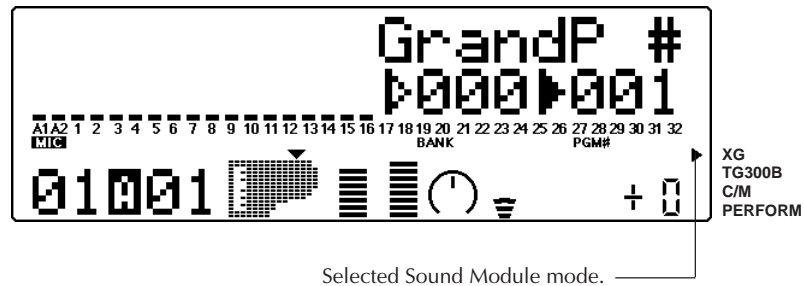
The MU100R has two main operating modes: Multi and Performance. In Multi mode, the MU100R is a 32-Part multi-timbral tone generator; in Performance mode, the MU100R effectively functions as four tone generators controlled over a single MIDI channel.

Which mode the MU100R is in depends on the selected Sound Module mode. If XG, TG300B or C/M are selected, the MU100R automatically sets itself to the Multi mode. When PFM is selected, the MU100R is in the Performance mode. (For information on selecting the Sound Module mode, see page 172.)

Each mode provides compatibility with different music software and hardware.

- XG: This stands for Extended General MIDI and provides the full potential of the MU100R, giving you access to the 1074 XG Voices plus the VL Voices.
- TG300B: This mode provides compatibility with the GM-B mode of the TG300 Tone Generator.
- C/M: This mode provides compatibility with most computer music software not supported by the other two Multi modes.
- PFM: This mode (Performance) lets you play four Voices simultaneously over a single MIDI channel. (For more information on using the Performance mode, see page 43.)

The bottom right of the display indicates the currently selected Sound Module mode.



NOTE

When set to the TG300B mode, the MU100R may not be able to play TG300-specific song data with complete accuracy. However, MIDI data designed for other computer music tone generators is compatible with the MU100R.

Play Modes and the Part Controls

Once the operating mode of the MU100R is set (Multi or Performance), there are two main ways you can use the MU100R: playing and editing. In the Play modes, you play the Voices; in the various Edit modes, you change their settings.

Within the Play modes are the Part controls. These let you make basic settings for the Parts. The Single Part controls allow you to make independent settings for each Part, while the All Part controls allow you to change the overall settings of all Parts. (See pages 96 and 98 for more information.) The MU100R has several different Edit modes, each with various menus and operations:

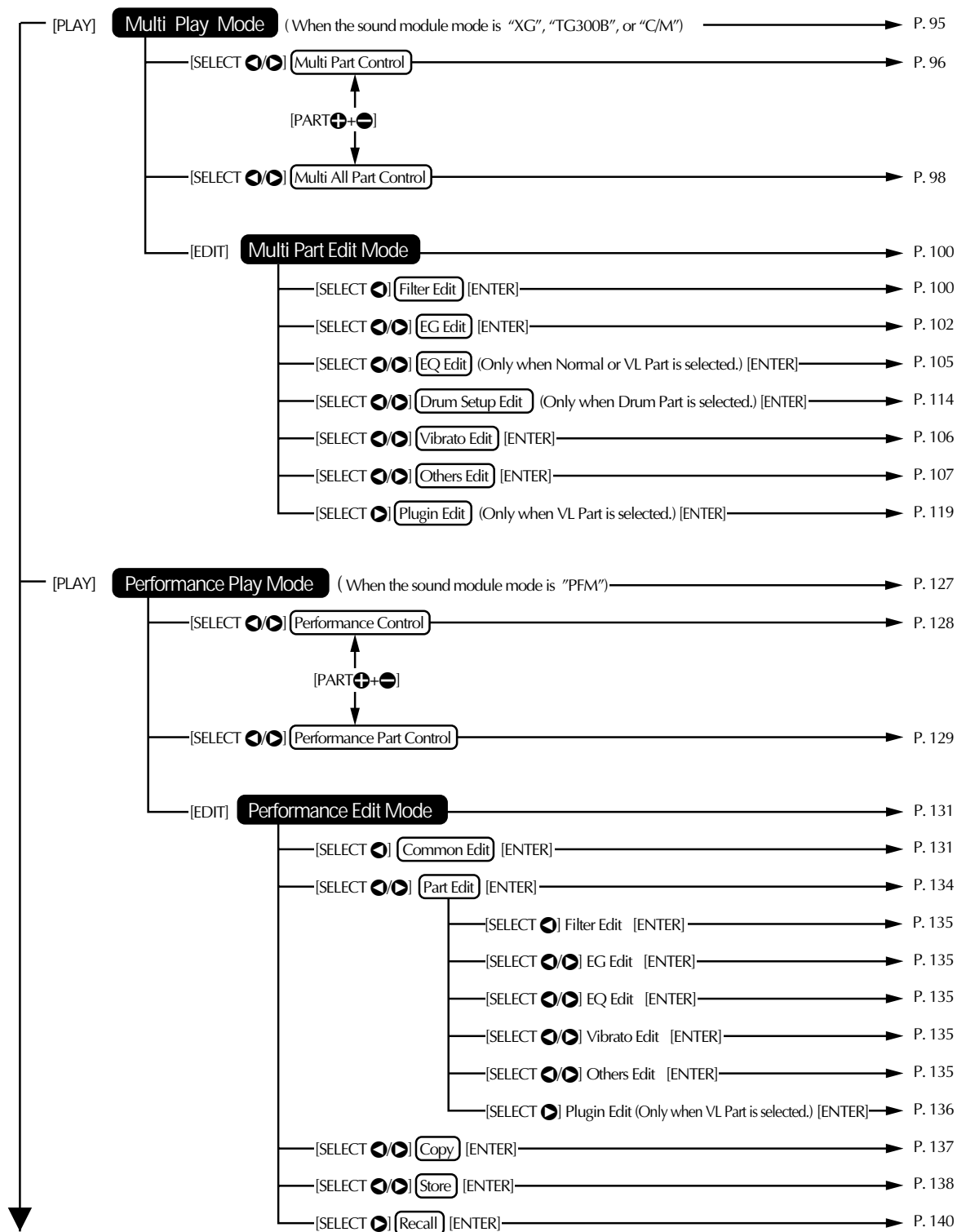
Part Edit Mode

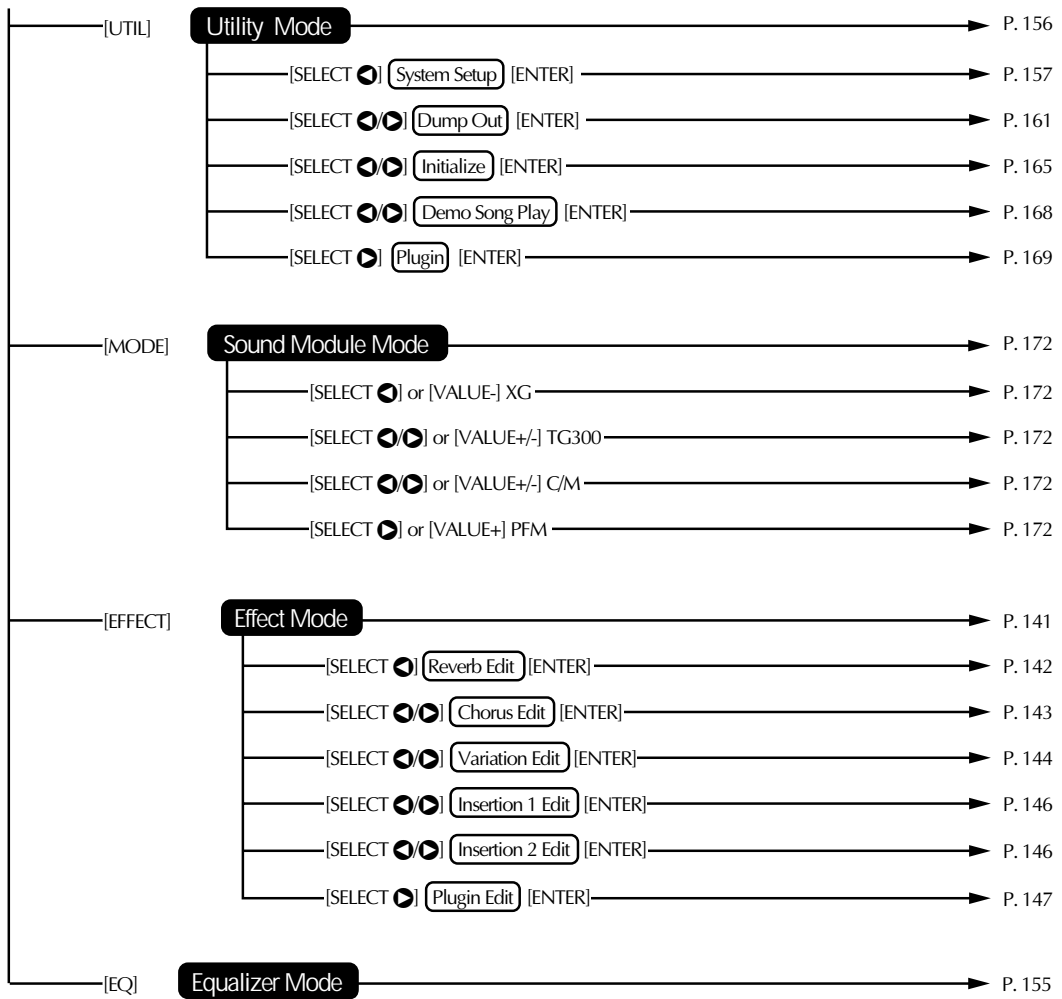
The Part Edit mode allows you to change certain settings for each individual Part, such as those of the Filter, EG (Envelope Generator), and many other settings. The internal Voices can be sounded during editing, allowing you to hear the effects of your edits.

Utility Mode

The Utility mode lets you set functions related to the overall operation of the MU100R, such as Master Tune, display Contrast and reception of certain MIDI messages that affect the entire instrument. Included also are miscellaneous operations, such as sending bulk data to a data storage device, initializing of the MU100R settings, and playing the special Demo song.

Modes and Function Tree





Utility Mode : Mode
 System Setup : Submode

Push on the SELECT buttons either **[Left Arrow]** or **[Right Arrow]** for SELECT **[Left Arrow]** / **[Right Arrow]**.

Push on the PART **[+]** and **[-]** simultaneously for PART **[+]** + **[-]**.



GUIDED TOUR

When using your MU100R for the first time, read through this short section of the manual. It guides you step-by-step in using many of the basic operations: setting the instrument up, connecting it properly to other equipment, and — most importantly — playing it. It also introduces you to most of the other, advanced features and operations of the instrument — enabling you to quickly and effectively get the most out of your new MU100R.

Setting Up Your MU100R

In this section, you'll learn how to:

- ▶ Connect the MU100R in the most basic setup — with a MIDI keyboard and an external amplifier/speaker system.

Other setup examples are covered in later sections; for example, setting up for use with a computer is on page 19. Once you've set up the MU100R, we urge you to play the Demo song (page 15) and hear what the instrument is capable of.

What You'll Need

- ✎ The MU100R and the included PA-5B power adaptor.
- ✎ A MIDI keyboard, electronic piano, or any instrument that can output MIDI data.
- ✎ An amplifier/speaker system, preferably stereo. Alternately, you can use a set of stereo headphones.
- ✎ Audio connecting cables.
- ✎ A MIDI cable.

Making the Connections

CAUTION!

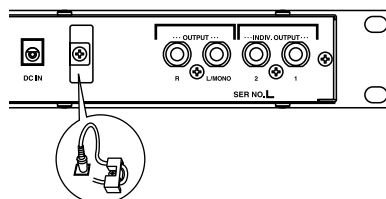
Before making any connections, turn all related equipment off, and make sure the MU100R power adaptor is not connected to an electrical outlet.

Operation

- 1** Connect the MIDI cable.
Connect the MIDI OUT terminal of the MIDI keyboard to the MIDI IN-A of the MU100R (as shown in the illustration).
- 2** Connect the audio cables.
Connect the R and L/MONO OUTPUT jacks of the MU100R to the appropriate inputs on the amplifier speaker system (as shown in the illustration).
 - If the amplifier has only one input, use the L/MONO jack on the MU100R. If you are using stereo headphones, connect them to the front panel PHONES jack.

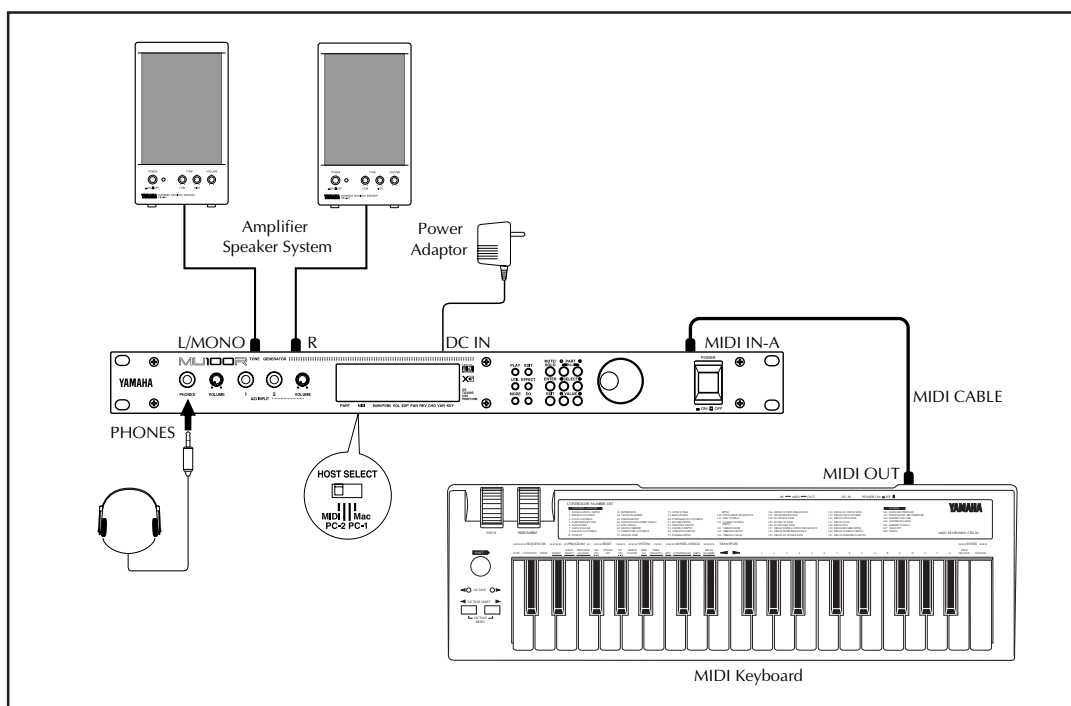
- 3 Set the HOST SELECT switch.
Set this rear panel switch to MIDI (see illustration).
- 4 Connect the AC power adaptor.
Plug the DC output cable of the PA-5B into the DC IN terminal on the rear panel, then plug the adaptor into an appropriate electrical outlet.

- Wrap the DC output cable of the adaptor around the cable clip (as shown below) to prevent accidental unplugging of the cable during operation.



CAUTION!

- Do not attempt to use an AC adaptor other than the PA-5B. The use of an incompatible adaptor may result in irreparable damage to the MU100R, and even pose a serious shock hazard.
- Be sure to disconnect the power adaptor from the outlet when the MU100R is not in use.



Now that you've set up the MU100R, we urge you to go on to the next section, turn on the instrument, and play the Demo song (page 15) to hear what the instrument is capable of. If you need information on setting up the MU100R for a different type of system, refer to “**Setting Up the MU100R in Your Music System**” on page 17.

Powering Up

Admittedly this is a simple operation, but you should be careful to follow the instructions below to avoid possible damage to your equipment and speakers.

Operation

- 1 Turn on the power of your MIDI keyboard.
- 2 Turn on the power of the MU100R.
Press the POWER switch.

After the animated greeting display finishes, the following display appears:



- 3 Turn down all volume controls.
This includes the MU100R and any connected equipment.
- 4 Turn on the amplifier/speaker system.
- 5 Set the volume controls.
First, set the volume control on the MU100R to about the mid-way position, then set the volume on the amplifier to a suitable level.

Powering Down

When you turn the power off, make sure to do it in the following order:

- 1) Amplifier/speaker system
- 2) MU100R
- 3) Other connected equipment (MIDI keyboard, etc.)

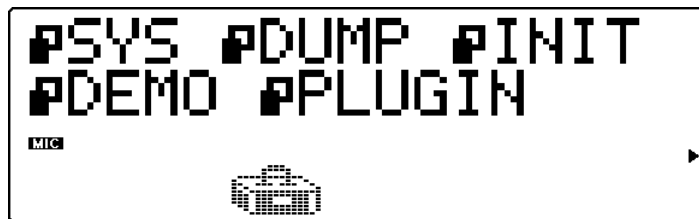
This prevents possible damage to the speakers.



Playing the Demo Song

Now that you've set everything up properly, try playing the built-in Demo song. This showcases the high-quality Voices and the AWM2 tone generation system of the MU100R. It also is an excellent demonstration of the 32-part multi-timbral capacity and the various expressive controls and effects that can be used simultaneously. Most importantly, the Demo song will give you an idea of how powerful the MU100R can be in your own MIDI/computer music setup.

Operation

- 1 Press the [UTIL] button.



- 2 Select and open the DEMO menu.
Use the [SELECT / ] buttons to select "DEMO" (the menu icon flashes), then press the [ENTER] button.



- 3 Start the Demo song.
Press the [ENTER] button. The Demo Song starts playing immediately and repeats indefinitely until stopped (in step 4 below). Playback of the individual Parts of the song is shown graphically by the "level meter" bars in the display.

NOTE

During Demo Song playback, none of the panel controls (with the exception of the [EXIT] button and the VOLUME control) can be used.

- 4** Stop playback of the song.
Press the [EXIT] button.



- 5** Exit from the Demo Song function.
Press the [EXIT] button again — twice to return to the Play mode. (Or you can simply press the [PLAY] button.)

Setting Up the MU100R in Your Music System

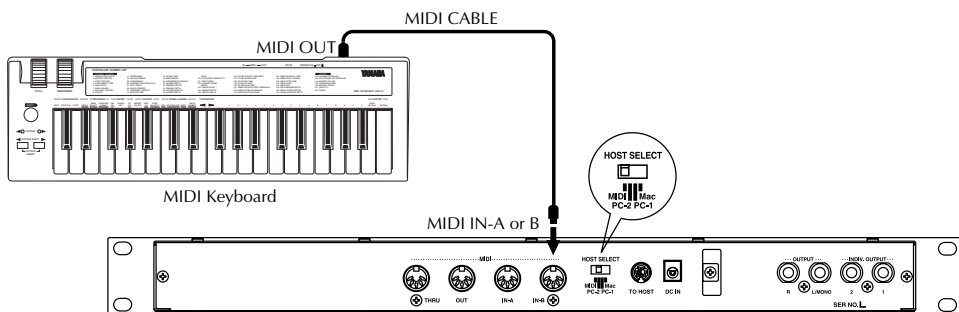
As you learned in the section **The MU100R — What It Is and What It Can Do** on page 4, the MU100R can be integrated into a variety of setups. It would be impossible to cover all connection possibilities in a short manual as this; however, the section below will help in quickly setting up the MU100R and using it in your system.

Connecting to MIDI Devices

The MU100R is equipped with MIDI IN, OUT, and THRU terminals, allowing you to use it in any MIDI system. Moreover, the two MIDI IN terminals are independent 16-channel ports, effectively giving you two tone generators in one. Here are some common connection examples using the built-in MIDI interface. Refer to the example that most closely matches your setup, then read the Operation steps at the end of this section.

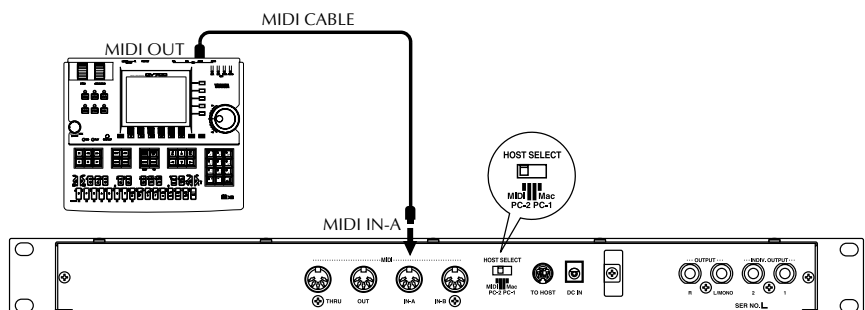
- *MIDI keyboard*

In this setup, you can play the sounds of the MU100R from the connected keyboard.



- *Hardware sequencer*

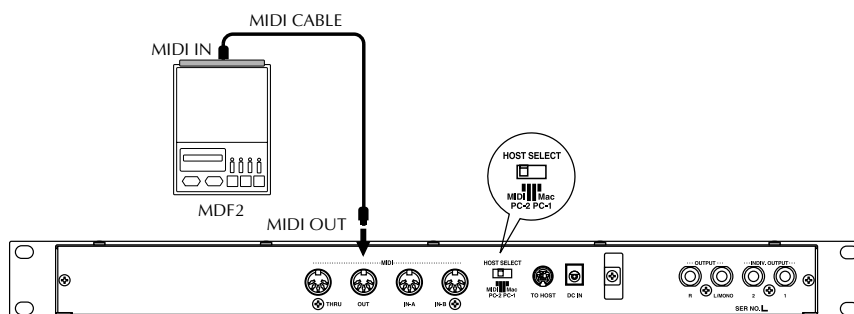
In this setup, a hardware sequencer (such as the Yamaha QY700) is used. The main advantage of such a setup is its portability.



• *MIDI data storage device*

This setup is used for backing up your important data — including original Performances you’ve created, as well as settings you’ve changed in the Part Edit, Effect, EQ, or Utility modes.

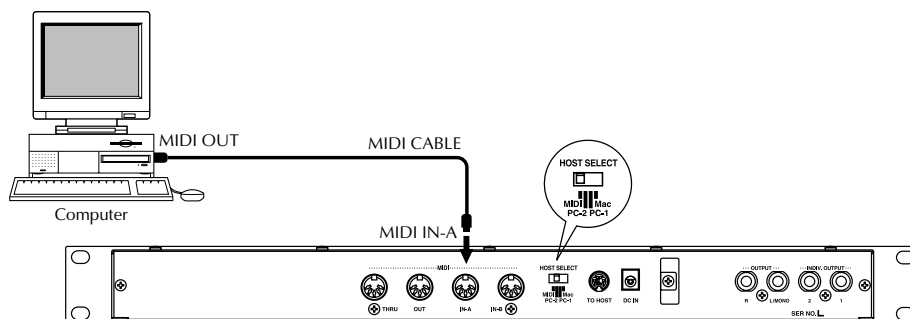
In this example, a Yamaha MDF2 MIDI Data Filer is used. To back up data, connect the MIDI IN of the MDF2 to the MIDI OUT of the MU100R. To restore the data to the MU100R, connect the MIDI OUT of the MDF2 to the MIDI IN of the MU100R. Refer to the owner’s manual of the MDF2 (or your particular data storage device) for specific operating instructions in receiving or sending data.



With the MDF2, you can also play compatible song data on the MU100R directly from the MDF2 itself, without the need of a sequencer. In this case, the MIDI OUT of the MDF2 should be connected to the MIDI IN of the MU100R.

• *Computer equipped with a MIDI interface*

In this setup, you can control the MU100R from a computer (using sequencing or other song playback software). In a variation on this, you can connect the computer to MIDI-A and a keyboard to MIDI-B. This allows you to play parts live over sequencer playback — even if the sequencer uses all 16 MIDI channels.



Operation

- 1** Set the HOST SELECT switch to MIDI.
- 2** Connect the MU100R to the appropriate MIDI device.
Refer to the illustrations above. Use a standard MIDI cable (see page 92).
- 3** Turn on the the connected device, then the MU100R.
- 4** If you are using a computer, start up your music software, and set up the appropriate options on the software for operation with the MU100R.

Connecting Directly to a Computer

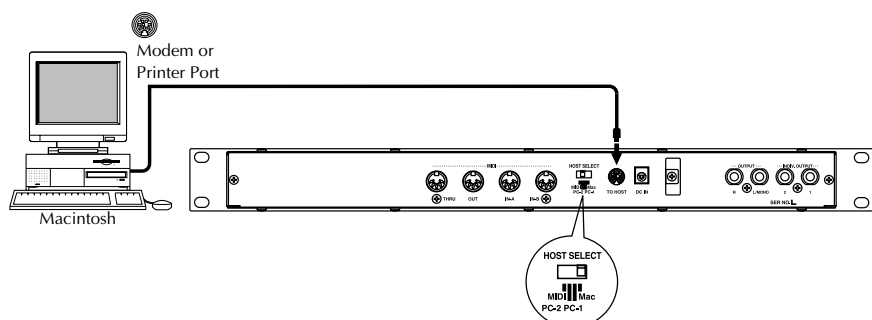
The MU100R features a built-in host computer interface, allowing you to directly connect it to your computer — eliminating the need of installing a special MIDI interface to your computer. The MU100R can be used with the following computers: Apple Macintosh and compatibles, IBM PC/AT and compatibles.

If your computer has a MIDI interface you may want to connect the MU100R to it, rather than using the host computer interface on the MU100R. (See the section “**Connecting to MIDI Devices**” on page 17.)

Depending on the computer or interface used, set the **HOST SELECT** switch to the appropriate setting: **MIDI, PC-1, PC-2** (IBM and compatibles), or **Mac** (Macintosh and compaibles). For information on the types of cables that can be used for connection, see the section “**MIDI/Computer Connecting Cables**” on page 92.

Macintosh and Compatibles

Follow these instructions if you have an Apple Macintosh not equipped with an external MIDI interface. Connect the **TO HOST** terminal on the MU100R to the Modem or Printer port on the Macintosh.



Operation

- 1** Set the HOST SELECT switch to Mac.
- 2** Connect the MU100R to the host computer.
Refer to the illustration above. Use a standard Macintosh cable (8-pin Mini DIN on both ends; see page 92).
- 3** Turn on the the host computer, then the MU100R.
- 4** Start up your music software.
If necessary, set up the appropriate options on the software for operation with the MU100R. The relevant settings may be found in menu(s) called "Studio Setup," "System Setup," or "MIDI Setup."

In this menu, you should be able to set separate MIDI outputs to access the two MIDI ports on the MU100R. For example, the device for MIDI OUT 1 should be set to "Yamaha MU100" (or "MU80," if "MU100" is not available).

Other options you may have to set include:

- | | | |
|---------------------|---|---|
| MIDI Interface Type | ➡ | Standard MIDI Interface |
| MIDI Time Piece | ➡ | On (for controlling all 32 Parts of the MU100R) |
| Clock | ➡ | 1 MHz |

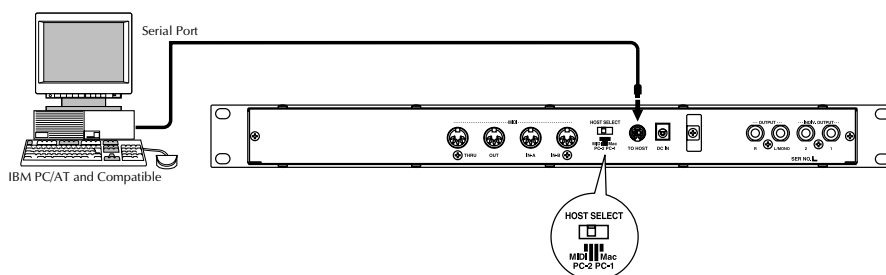
(The specific menu/parameter names may differ depending on your particular music software. For detailed instructions, refer to the owner's manual or on-line help of the software.)

Hint

If you have a second multi-timbral tone generator (such as the MU50), you can connect it to the MIDI OUT terminal of the MU100R and have three independent MIDI ports (for 48-channel operation). The software settings above apply here as well: Set the device for MIDI OUT 3 to "Yamaha MU50" (or similar). (For more information, see page 159.)

IBM PC/AT and Compatibles

Follow these instructions if you have an IBM PC/AT or compatible computer not equipped with an external MIDI interface. Connect the **TO HOST** terminal on the MU100R to one of the computer's serial ports, COM 1 or COM 2.



The instructions below assume you are running Windows95 on your PC. For using the **TO HOST** connection with other software and operating systems, consult your Yamaha dealer. If your computer and music software cannot recognize the **TO HOST** connection, you can still use the MU100R by installing a MIDI interface (internal card or external) to the computer.

Operation

- 1 Install the included driver software.
For Windows95
 Install the included Yamaha CBX Driver for Windows95. The driver software is on a floppy disk included with the MU100R. Make sure to thoroughly read the "A:\MIDIDRV\README_E.TXT" on the disk. This contains essential information on installing and setting up the driver to your computer.

For Windows3.1
 Install the included Yamaha CBX Driver for Windows3.1. The driver software is on a floppy disk included with the MU100R. Make sure to thoroughly read the "A:\IBMPC\CBXT3.WRI" on the disk. This contains essential information on installing and setting up the driver to your computer.
- 2 Set the HOST SELECT switch to PC-2.
- 3 Connect the MU100R to the host computer.
 Refer to the illustration above. Use a standard computer cable (8-pin Mini DIN to 9-pin D-SUB; see page 92).
- 4 Turn on the the host computer, then the MU100R.

5 Start up your music software.

If necessary, set up the appropriate options on the software for operation with the MU100R. The relevant settings may be found in menu(s) called “Studio Setup,” “System Setup,” or “MIDI Setup.”

In this menu, you should be able to set separate MIDI outputs to access the two MIDI ports on the MU100R. For example, MIDI OUT 1 should be set to “Yamaha CBX A Driver” (or “Windows MIDI, Output 1”). Similarly, MIDI OUT 2 should be set to “Yamaha CBX B Driver” (or “Windows MIDI, Output 2”).

(The specific menu/parameter names may differ depending on your particular music software. For detailed instructions, refer to the owner’s manual or on-line help of the software.)

Hint

If you have a second multi-timbral tone generator (such as the MU50), you can connect it to the MIDI OUT terminal of the MU100R and have three independent MIDI ports (for 48-channel operation). The software settings above apply here as well: Set MIDI OUT 3 should be set to “Yamaha CBX C Driver” (or “Windows MIDI, Output 3”). (For more information, see page 159.)

Once you’ve set up the MU100R in your system, check that the MU100R is properly receiving data.

Selecting and Playing the Performances

As pointed out on page 43, the Performances of the MU100R let you play four Voices together over one MIDI channel. These specially programmed Performances (100 Preset and 100 Internal) take full advantage of the MU100R dynamic Voices and flexible editing functions — giving you exceptionally powerful and expressive sounds for live performance situations.

In this section, you'll learn how to:

- ▶ Call up the Performance mode.
- ▶ Select and play Performances.

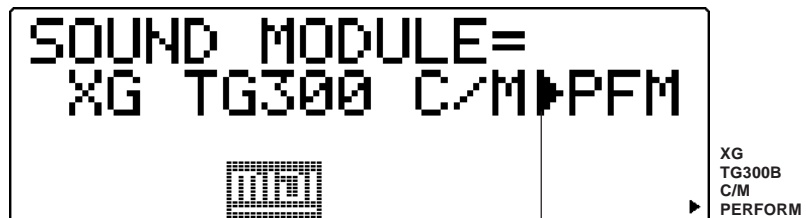
Calling Up the Performance Play Mode and Playing the Performances

Operation

- 1 Press the [MODE] button.



- 2 Select "PFM" (PERFORMANCE) in the display.
Use the [SELECT /▶] buttons, [VALUE /▶] buttons or data dial.



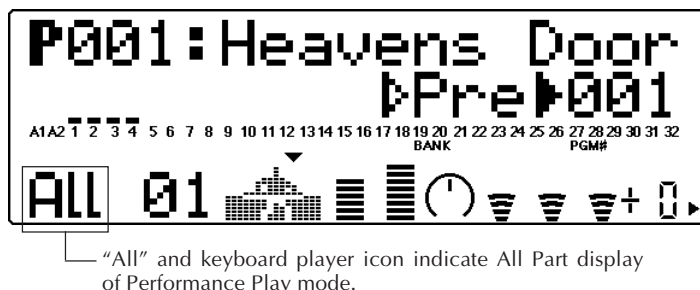
Indicates Performance mode.

The Performance mode setting is also shown by the arrow at the bottom right of the display.

NOTE

For more information on the sound module modes, see page 6.

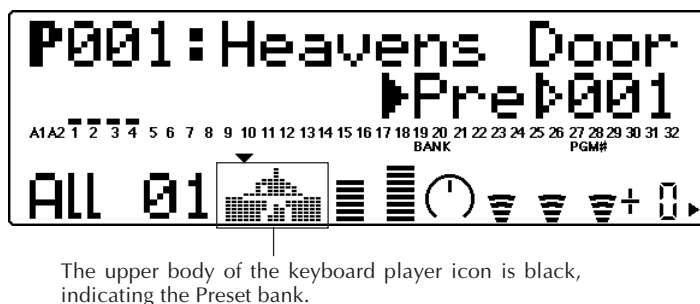
- 3 Press the [PLAY] button to go to the Performance Play mode. You can press the [EXIT] button for this as well.



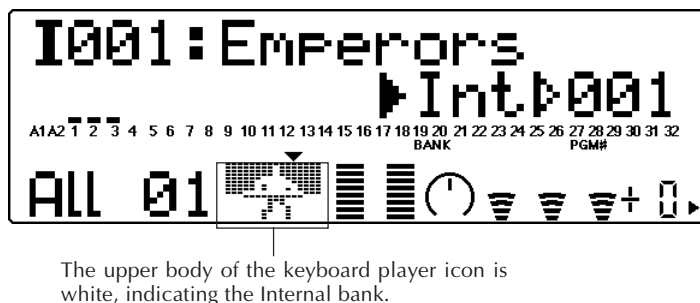
If the All Part display above (with the keyboard player icon) is not shown, press both [PART \ominus/\oplus] buttons simultaneously.

- 4 Select the desired bank of Performances — Preset or Internal. Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to select the Bank parameter, then use the [VALUE \ominus/\oplus] buttons to select the desired bank, Preset (Pre) or Internal (Int).





- Preset bank

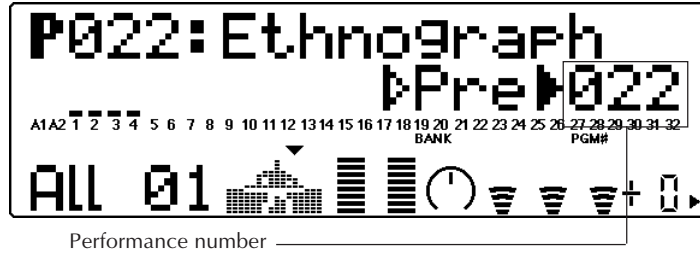


- Internal bank



5 Select the desired Performance.

Use the [SELECT / ] buttons to select the Program Number parameter, then use the [VALUE / ] buttons or data dial to select the desired Performance number.

**6** Play the connected MIDI keyboard.

Make sure that your keyboard is transmitting over MIDI channel 1. (Refer to the owner's manual of that instrument if necessary.) If you've carefully followed all instructions up to now, the "level meter" bars in the display should move — and you should be able to hear the sound of the MU100R as you play.



The "level meter" bars indicate the "level" (velocity) of the incoming MIDI data.
These numbers indicate the four Parts of the Performance.

Go on to select other Performances in the same bank and play those as well. To try out Performances in the other bank, return to step #4 above.

Selecting and Playing Individual Voices

The MU100R has a stunningly huge variety of Voices — a total of 1267. In this section, you'll select and play Voices in the XG mode, which features 1074 different Voices. The MU100R also features a built-in VL tone generator that provides 256 Voices using the sophisticated Virtual Acoustic Synthesis system (page 63).

In this section, you'll learn how to:

- ▶ Call up the XG mode.
- ▶ Select Voice banks and Voices from the panel controls.
- ▶ Change the Play mode display to suit your preference.
- ▶ Select and play Voices from a MIDI keyboard.

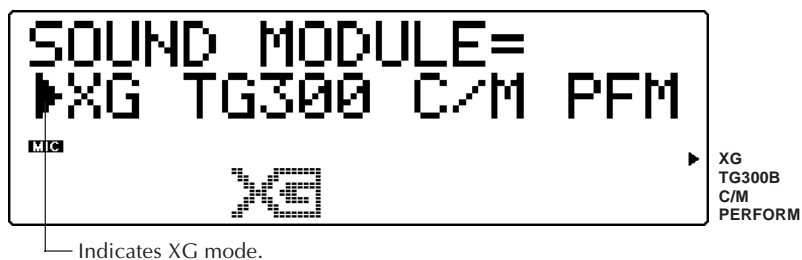
Calling Up the XG Mode

Operation

- 1 Press the [MODE] button.



- 2 Select "XG" in the display.
Use the [SELECT ◀/▶] buttons, [VALUE -/+] buttons or data dial.



The XG mode setting is also shown by the arrow at the bottom right of the display.

- 3 Press the [PLAY] button to go to the Play mode.
You can press the [EXIT] button for this as well.

About the Modes — Multi and Performance

The MU100R has two main operating modes: Multi and Performance. You used the Performance mode earlier when playing Performances — playing four Voices over one MIDI channel. The Multi mode is primarily used in sequencer and computer music applications, since it allows you to play all 32 Parts independently over different MIDI channels.

Which mode the MU100R is set to depends on the selected Sound Module mode. The XG, TG300B and C/M settings are all Multi mode. When PFM is selected, the MU100R is in the Performance mode.

Selecting Voice Banks and Voices From the Panel

Operation

1 Select a Part.

Use the [PART \ominus/\oplus] buttons. Depending on the selected Part, one of the displays below will appear:

- For Parts 1 – 16 and the A/D Parts:



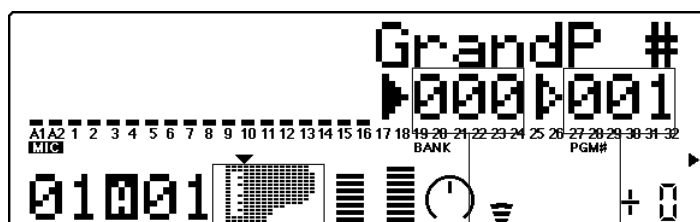
- For Parts 17 – 32:



For this example, select Part 1. Press the appropriate button until "01" appears in the PART section of the display.



- 2 Select the bank number.
Use the [SELECT ◀/▶] buttons to highlight the bank number parameter (as shown below).

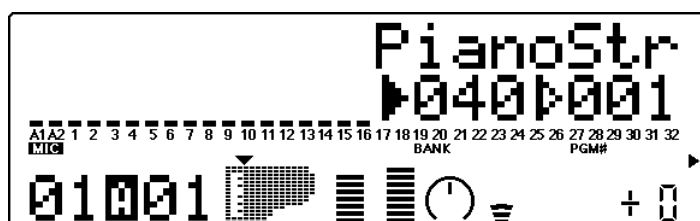


Instrument icon. Arrow at top left of icon indicates bank number is selected.

Bank number. Dark arrow indicates bank number is selected.

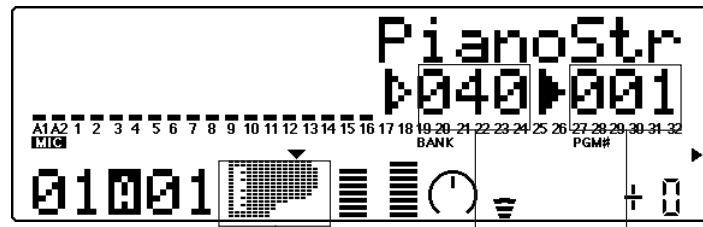
Program number.

- 3 Change the bank number.
Use the [VALUE -/+] buttons or data dial. Notice that the bank numbers “jump” as they are selected — the MU100R skips bank numbers that have the same Voice as bank “000.”



In the XG mode, several banks of Voices are available. Each bank contains up to 128 different Voices, for a total of 1074 Voices.

- 4 Select the program (Voice) number.
Use the [SELECT ◀/▶] buttons to highlight the program number parameter (as shown below).



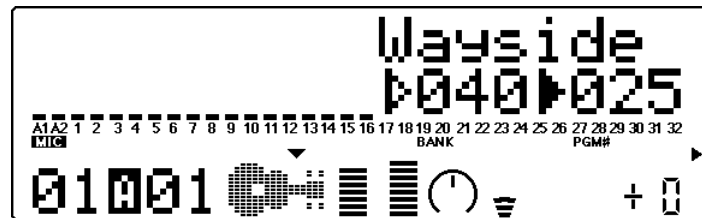
Instrument icon, indicating the type of Voice. Arrow at top right of icon indicates program number is selected.

Bank number.

Program number. Dark arrow indicates program number is selected.

5 Change the program number.

Use the [VALUE \ominus/\oplus] buttons or data dial. In the example display below, Voice number 25 has been selected.



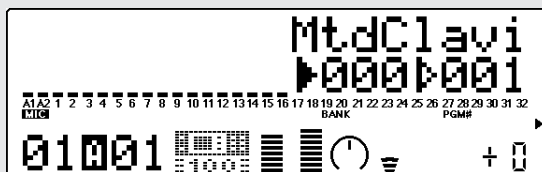
6 Play the Voice.

Play this new Voice from the connected MIDI keyboard. (Make sure that the keyboard is transmitting on channel 1.) If you've carefully followed all instructions up to now, the "level meter" of the Part should move — and you should be able to hear the sound of the MU100R as you play. Try selecting other Voice banks and Voices and play them as well. Each Voice bank contains some different Voices, some of which are variations, some unique.

Details

- The MU100R's Voices and program numbers follow the GM (General MIDI) format. This means that you can select a Voice type by its number, then select Voice variations by bank. For example, all the nylon guitar Voices are at program number 25.
- In the XG mode, the Voices are conveniently organized in the banks according to their type. For example, Voices having stereo variations or brighter variations are found in the "Stereo" and "Bright" banks, respectively. (See the "Sound List & MIDI Data" booklet.)
- Banks MSB 48, 46 and above feature Voices that are not simply variations, but use different instrument samples. (See the "Sound List & MIDI Data" booklet.)

- Notice that as you increase the bank number, at some point beyond the XG Voice banks (above bank 127) the bank number returns to “000” and the following icon appears in the display:



Banks showing this icon are MU100 Exclusive Voice banks, and are different than the same numbered XG Voice banks. (See the “Sound List & MIDI Data” booklet.)

- VL Voice banks may also be selected if VL Voice selection for the Part has been enabled. (See page 69.)
- Though the MU100R skips over bank numbers with identical Voices (see step #3 above), it can be set to not skip bank numbers, if desired. (See page 160: Utility mode/System/Display Bank Select.)

Changing the Play Mode Display

The MU100R lets you view the Parts in three ways, depending on your preference.

Press the [PLAY] button repeatedly.

Each press of the [PLAY] button switches among the three displays below.

1) Full level meters



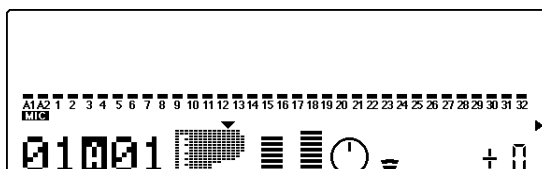
This shows the level meters at their maximum height, but only displays half of the Parts.

2) All Parts, with half level meters



This displays all Parts, but the level meters are at half the height.

3) All Parts, with full level meters



This displays all Parts with the level meters at maximum height. However, the Voice name and number are not displayed.

Selecting Voices From a MIDI Keyboard

You can also select Voices remotely from a connected MIDI keyboard. Though the actual operation may differ depending on the keyboard used, the general procedure is the same. These instructions also apply to use with a computer. (Refer to the owner's manual of your specific instrument or software for detailed instructions.)

Operation

- 1** Make the necessary settings on the keyboard.
Make sure that the keyboard is set to transmit over the desired MIDI channel (the same as that of the selected Part), and that it is set up to send Program Change messages.
- 2** Select a program number on the keyboard.
The Voice number and name on the MU100R will change, and will be the same number as the program number you selected on your keyboard.

Details

- Depending on what keyboard you are using to control the MU100R, you may need to be careful in selecting program numbers. The MU100R's program numbers start at "001," but some keyboards have different numbering systems. For example, some start at "0" — which means that selecting "25" on the keyboard will select Voice 026 on the MU100R.
- Part 10 is reserved for playing drum "kits." This is the default factory setting for all of the Multi modes (XG, TG300B, and C/M). For more information on drum Parts, see page 39.

Editing in the Multi Mode

This section takes you step-by-step through an example editing session in the Multi mode. The operations and techniques you learn here enable you to perform any editing operation in the Multi mode.

There are two separate sections of the Multi mode that are devoted to editing: the Single/All Part controls, and the Edit menus.

In this section, you'll learn how to:

- ▶ Select a Part for editing.
- ▶ Use the Single Part controls — to change the MIDI channel of a Part, and change its Volume and Pan settings.
- ▶ Use the Edit menu parameters — to change the filter and EG (Envelope Generator) settings of a Part.
- ▶ Use the Drum Setup controls — to edit change the Part settings for a drum kit.

Hints

- *Editing Parts, not Voices*

It is important to remember that in editing you are not changing the Voice itself, but rather the Part the Voice is assigned to. This means that when you change the Voice of the Part, the edited settings apply to the new voice, whether they're appropriate or not.

You can use this to your advantage by recording all Multi settings to your sequencer, before the actual song data. This lets you instantly reconfigure the MU100R and all its settings for each song.

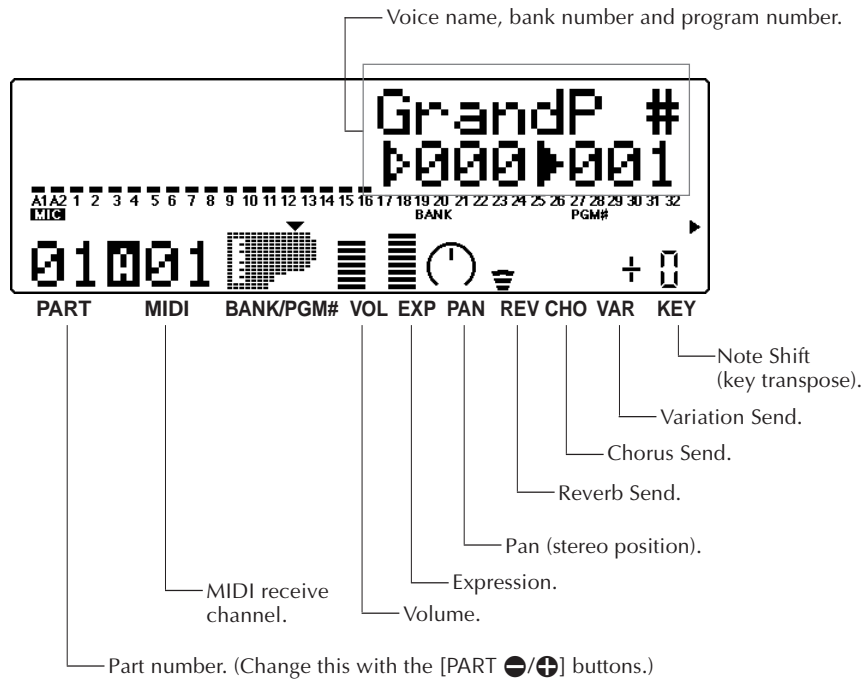
- *Saving your edits*

Keep in mind that any edits you make in the Multi mode are automatically saved as the power on defaults. In other words, the next time you turn on the power, the previous condition of all Parts is automatically recalled. If you want to save one "set" of edits (for example, for use with a specific song) before creating another set, you must first save the current setup to a sequencer or MIDI data filer. (For details, see page 161.)

Single Part Controls

You can make changes to each individual Part by using the Single Part controls. These are displayed in the Multi Play mode, and give you at-a-glance confirmation and control of the important basic settings of the selected Part. If the Multi mode was active when you last turned the power off, the next time you turn the power on, the Single Part controls are automatically called up.

Let's take a look at the Play display again:



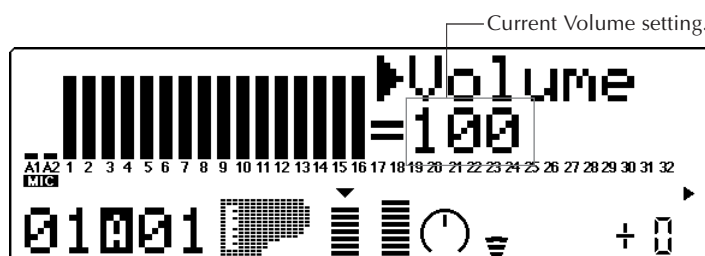
Each of these settings are made independently for each Part. For example, each Part could have a different Volume setting, or a different Pan setting. Try going through the brief sections below and making some changes in the Part controls yourself.

Changing the Volume and Pan settings of a Part

Here, we'll change the Volume and Pan settings of one Part's Voice.

Operation

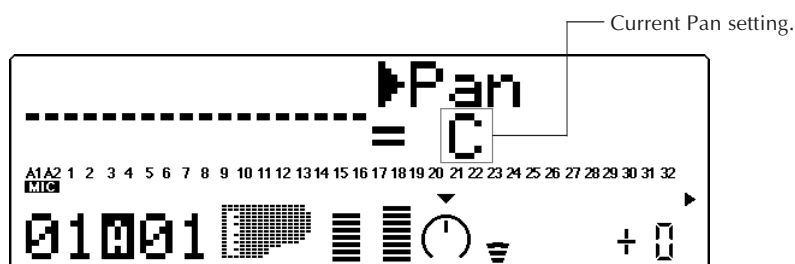
- 1 Select the desired Part.
Use the [PART \ominus/\oplus] buttons to select Part 1.
- 2 Select the desired control.
Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to select the Volume control.



- 3 Change the setting.
Use the [VALUE \ominus/\oplus] buttons or data dial, and play the keyboard as you edit so you can hear the change in the sound.

Now, let's change the Pan setting for the Part:







- 4 Select the desired control.
Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to select the Pan control.





- 5 Change the setting.
Use the [VALUE \ominus/\oplus] buttons or data dial to change the setting, and play the keyboard again as you make changes.
- 6 Return to "home base."
Pressing the [EXIT] button from any of the Single Part controls automatically returns to the Voice name/program number display. This is a convenient way to instantly return to "home base" from a "distant" control.

On Your Own...









If you want to, try making changes to some of the other Part controls. The procedure is the same:

- 1) Select a Part with the [PART /] buttons.
- 2) Select a control for editing with the [SELECT /] buttons.
- 3) Change the setting with the [VALUE /] buttons or data dial.
- 4) Use the [EXIT] button as needed to return to “home base” — Voice name and number.

Hint

- You can easily edit the same control for different Parts. To do this, simply remain at the selected control and use the [PART /] buttons to change the Part to be edited.
- Setting different Parts to the same MIDI channel is a way to build “fat,” richly textured sounds — like the four-Voice sounds created in the Performance mode. The advantage to this method here is that you are not limited to four Voices. The disadvantage is that you can only create and use one of these “monster” sounds at a time. (However, you can store/load your Multi mode settings to/from a computer or data filer; see page 17.)

To do this:



- 1) Select the desired Part (by using the [PART /] buttons).
- 2) Select the Receive Channel (“Rcv CH”) control (by using the [SELECT /] buttons).
- 3) Set the Receive Channel value (by using the [VALUE /] buttons or data dial).
- 4) With the Receive Channel still selected, select a different Part (with the [PART /] buttons), and set it to the same value as the other Part.
- 5) Repeat step #4 above for as many other Parts as desired.

For example, if you’ve set both Parts 1 and 2 to MIDI channel 1, both of their “level meters” should move together as you play. And, if the two Parts are set to different Voices, you should hear two different Voices sound at the same time. (For instructions on changing the Voice for a Part, refer back to “Selecting and Playing Individual Voices” on page 26.)

For more information on the specific Part controls, see page 96.

All Part controls

The instructions in this section show you how to change the settings for individual Parts; these are the Single Part controls. The All Part controls, on the other hand, let you change certain global settings affecting all the Parts.



To select the All Part controls, simultaneously press both [PART /] buttons. (For more information on the All Part controls, see page 98.)

Edit Menu Parameters



The Edit menu parameters provide more detailed and advanced controls over the Parts. These are powerful tools that let you subtly enhance or fine-tune the sound of a Voice — or radically change its character for some wild and unique sounds.

Changing the Filter and EG Settings of a Part

Operation

- 1 Select the desired Part.
Use the [PART / >] buttons. Also, for the sake of these instructions, select the “SquareLd” Voice, #081. (See page 27.)
- 2 Call up the Edit menu.
Press the [EDIT] button.



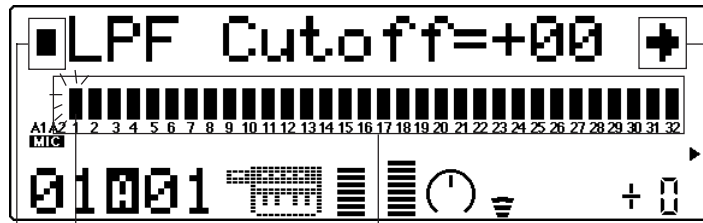
- 3 Select “FILTER” in the display.
Use the [SELECT / >] buttons. The Edit menu has five items: FILTER, EG (Envelope Generator), EQ (Equalizer), VIBRATO, and OTHERS. The “flag” next to the item flashes when selected.

Details

- When a drum Part is selected, the EQ menu item is replaced by “DRUM.” (See page 114 for information on editing drum Parts.)
- When a VL Voice Part is selected, the “PLUGIN” menu item also appears in the display.

- 4 Call up the Filter parameters.
Press the [ENTER] button.

- 5 Select the “LPF Cutoff” parameter.
Use the [SELECT / ] buttons.





Selected Part
flashes.

The bars graphically indicate pa-
rameter values for each Part.

Indicates no other parameters
are available (to the left).

Indicates additional parameters
are available (to the right).

- 6 Adjust the value while listening to the sound.
Hold down a note on the connected keyboard and turn the data dial
to adjust the value, swinging between the maximum (+63) and
minimum (-64) values. Notice how the timbre of the sound changes.
Before going to the next step, set LPF Cutoff to “+63.”
- 7 Select “LPF Reso” and change the value.
Use the [SELECT / ] buttons. Then, do the same as you did in the
last step, holding a note and changing the value with the data dial.





Hint

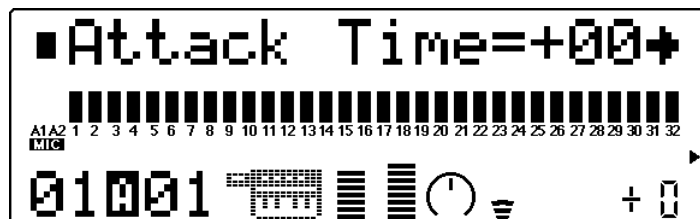
- Try holding notes or chords in different octaves of the keyboard as you adjust the parameters, since the Filter effects depend on the pitch or frequency of the sound.

Details

- The effect of the Filter parameters also differs depending on the selected Voice. (For more information on the Filter parameters, see page 100.)

Now, let's change one of the EG parameters:

- 8 Go back to the Edit menu.
Press the [EXIT] button.
- 9 Select and call up “EG.”
Use the [SELECT / ] buttons to select “EG,” then press the
[ENTER] button.
- 10 Select the “Attack Time” parameter.
Use the [SELECT / ] buttons.



- 11** Adjust the value while listening to the sound.
Try setting this to around “+30” and play the keyboard. Notice how the attack of the sound has become slower.

- 12** Select and adjust the “Release Time” parameter.
Use the [SELECT / ] buttons, then set this to around “+50.”











Play some notes on the keyboard and release them. Notice how the sound sustains after you release each key.

Details



- The effect of the EG parameters differs depending on the selected Voice. (For more information on the EG parameters, see page 102.)

On Your Own...

While you're at it, try making changes to some of the other Edit parameters. The procedure is the same:

- 1) Select the desired Part with the [PART / ] buttons.
- 2) Call up the Edit menus by pressing the [EDIT] button.
- 3) Select the desired menu with the [SELECT / ] buttons, and press [ENTER].
- 4) Select the desired parameter with the [SELECT / ] buttons, and change the value with the [VALUE / ] buttons or data dial.
- 5) Use the [EXIT] button as needed to return to the Edit menu.

Hint

You can select different Parts (by using the [PART / ] buttons) at any point in the editing session, no matter which Edit menu or parameter is selected. This lets you quickly shuttle among the various parts and effectively edit the desired parameters. The selected Part is always indicated at the bottom left of the display.

For more information on the specific Edit parameters, see page 100.

Editing Drum Kits — with the Drum Setup Controls

The Drum Setup controls provide a comprehensive set of tools for controlling and changing the drum kit Voices. Many of these parameters can be set individually for each sound in a Drum Part. Up to four of your original editing setups can be permanently stored.









Unless you've set them otherwise, Parts 10 and 26 are automatically set to play a Drum Part and the MIDI channel for both is set to 10. (General MIDI song data is standardized for playing drum/percussion sounds over channel 10.)

For the sake of these instructions, we'll simply select Part 10 and edit the existing Drum Part. However, you can set up additional Drum Parts on any of the Part numbers; refer to the box section below.

Remember that once a Part is assigned a Drum Part, different drum kit Voices can be selected. (Refer to the "Sound List & MIDI Data" booklet.)

Assigning a Drum Part

This operation allows you to assign a Drum Part to any of the Part numbers — letting you use two or more different drum kits within the same song.

1. Select the desired Part.
Use the [PART / ] buttons.
2. Call up the Edit menu.
Press the [EDIT] button.
3. Select and call up the OTHERS menu.
Use the [SELECT / ] buttons, then press [ENTER].
4. Select the Part Mode parameter.
Use the [SELECT / ] buttons.
5. Set the parameter to "drumS1."
Use the [VALUE / ] buttons or data dial. As long as you select one of the "drum sets" (drumS1 – drumS4), any edits you make will automatically be saved to the selected set.

Details

- The "normal" setting is for normal Voices; the "drum" setting selects the Drum Part, but cannot be edited. (For more information on the Part Mode, see page 108.)

6. Press the [EXIT] button.
Press it once to return to the Edit menus, twice to return to the Play display.

Making Changes to Individual Drum Sounds — the “Drum” Parameters

The Drum parameters provide extraordinary flexibility, since they allow you to make independent settings for the individual drum/percussion sounds in a Drum Part. We’ll explore a couple of the possibilities here:

Operation

- 1 Select “DRUM” from the Edit menus (with the [SELECT ◀/▶] buttons) and press [ENTER].



- 2 Select “E3: Conga L.”
Play E3 on the connected MIDI keyboard, or use the [PART ◀/▶] buttons to select “E3.”

Details

- In the Drum parameters you cannot use the [PART ◀/▶] buttons to select a Part; they are reserved for selecting notes/sounds only.



- 3 Select the Pitch Coarse parameter, and set it to “-22.”
Use the [SELECT ◀/▶] buttons to select the parameter, then the [VALUE ◀/▶] buttons or data dial. This setting creates a deep log drum sound.



- 4 Select the Velocity Pitch Sensitivity parameter (VelPchSens), and set it to “+12.”

Again use the [SELECT ◀/▶] buttons, then the [VALUE ◀/▶] buttons or data dial. Play the key softly to strongly and notice how the pitch changes according to key velocity.



- 5 Select "F#3: Timbale L."
Play F#3 on the connected keyboard, or use the [PART /] buttons to select "F#3."
- 6 Select the LPF Cutoff parameter, and set it to -40.
- 7 Select the LPF Resonance (LPF Reso) parameter, and set it to +63.
- 8 Select the Velocity LPF Sensitivity parameter (VelLPFSens), and set it to +16.
Play the key softly to strongly and notice how key velocity changes the timbre of the sound for a "wah-wah" effect.

More Drum Editing

Try some of the other parameters in the edit menus (FILTER, EG, VIBRATO, OTHERS) on your own and hear how they affect the drum sounds. Keep in mind that these are applied to the entire Part, and cannot be set individually for each sound.

As a springboard for further exploration, try editing the following parameters in the OTHERS menu:










1. With a drum Part selected, call up the OTHERS parameters.
Press [EDIT], select "OTHERS," then press [ENTER].
2. Select "PitBndCtrl" and set the value to +24.
Play with the pitch bend wheel on the connected keyboard while playing different keys.
3. Select "MW LFOPMod" and set the value to 090.
Play with the modulation wheel on the connected keyboard while playing different keys.

Select and change other parameters in the same way.

NOTE

Some of the parameters (such as Release Time in the EG menu) may not have any affect on the drum sounds at all. Also, the effect of a parameter may differ depending on the specific drum sound. (For more information on editing Drum Parts, see page 114.)

On Your Own...

- 1) Select a Drum Part with the [PART / - 2) Call up the Edit menus by pressing the [EDIT] button.
- 3) Select the “DRUM” menu with the [SELECT / - 4) Select the desired drum sound, either by playing the corresponding key of the MIDI keyboard or by using the [PART / - 5) Select the desired parameter with the [SELECT / / - 6) Use the [EXIT] button as needed to return to the Edit menu.

Hint

Use of a connected MIDI keyboard is an exceptionally fast and convenient way to edit Drum Parts. It not only lets you quickly shuttle among the various sounds while editing, it also lets you hear the sound being edited and see the sound name.

For more information on the specific Drum parameters, see page 114.

Editing in the Performance Mode

The Performance mode is an exceptionally powerful and flexible mode that allows you to combine four different Voices (including both A/D inputs) and play them from a single MIDI channel.

The potential applications of the Performance mode are enormous, and we'll touch on some of the main ones here. As the name suggests, the Performance mode is primarily intended for live performance situations. The four Voices can be played altogether in a huge, "fat" layer, or can be split across the keyboard in different zones, or can be switched according to key velocity.

A total of 200 Performances are available: 100 Preset, which are reserved for only factory settings, and 100 Internal, to which you can save your own original Performances.

This section takes you step-by-step through an example editing session in the Performance mode. The operations and techniques you learn here enable you to perform any editing operation in the Performance mode.

As with the Multi mode, the Performance mode has two separate sections that are devoted to editing: the Single/All Part controls, and the Edit menus.

In this section, you'll learn how to:

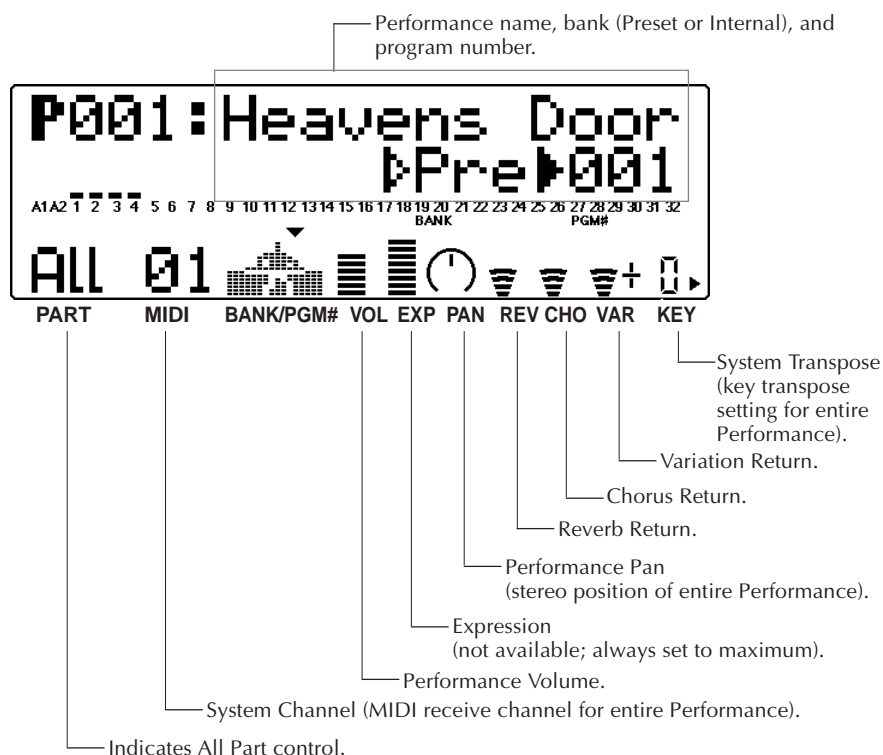
- ▶ Use the All Part controls — to transpose the overall key of a Performance.
- ▶ Use the Single Part controls — to select different Voices for the Performance.
- ▶ Use the Edit menu parameters to create a "fat" two-Voice sound.
- ▶ Use the Mute/Solo button for effective editing.
- ▶ Set up a keyboard split — with individual Voices playable from different sections of the keyboard.
- ▶ Set up a Performance for "playing" filter sweeps with the modulation wheel on your keyboard.
- ▶ Save your original Performance.

All Part Controls

You can make changes to the overall Performance by using the All Part controls. These are displayed in the Performance Play mode, and give you at-a-glance confirmation and control of some important basic settings of the selected Performance.

In the Performance mode, the All Part controls are automatically called up whenever you turn the power on or select the Performance mode.

Let's take a look at the All Part Performance Play display:




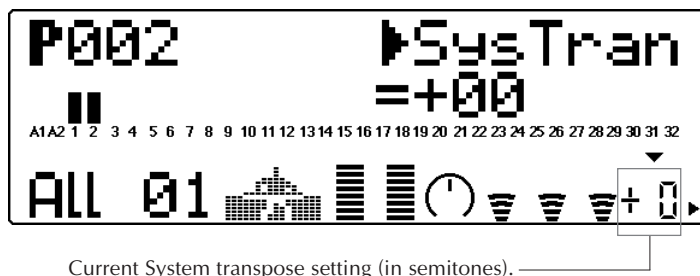
For more information on the All Part controls, see page 128.



Transposing the Overall Key of a Performance

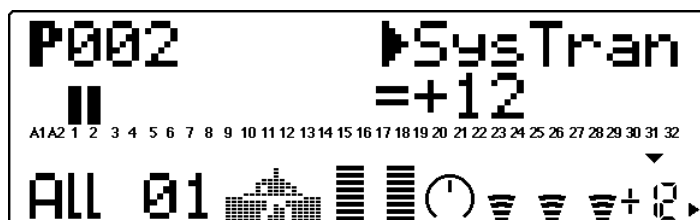
In this example, you'll change the System Transpose setting for the "Rich Piano" Performance. This All Part control is useful for instantly changing the key to match the range of a vocalist, or for ease in playing difficult keys.

Operation

- 1** Select the "Rich Piano" Performance.
First select the Preset bank ("Pre"), then select Performance number 002 ("Stereo Grand"). (For instructions on selecting Performances, see steps #4 and #5 on page 24.)
- 2** Select the System Transpose control.
Use the [SELECT ] buttons to move the cursor arrow to the appropriate control. ("SysTran" appears in the display.)



- 3** Change the System Transpose setting as desired.
Use the [VALUE  /  buttons or data dial. (The "+00" setting is normal; \pm "12" is up/down one octave.)



Play the connected keyboard and try other transpose settings as you play.

Single Part Controls — Selecting Different Voices for the Performance

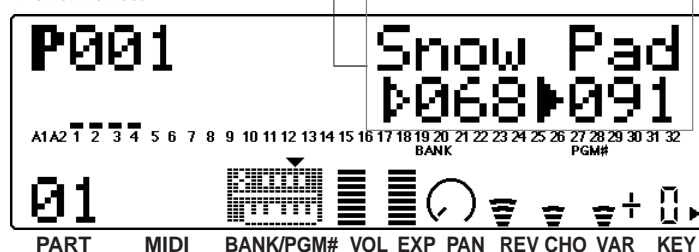
In this next section, you'll use the Single Part controls to change the Voice settings of the Performance.

Operation

- 1 Call up the Single Part controls.
Simultaneously press both [PART \ominus/\oplus] buttons.

Indicates active Part(s) of the Performance.

Performance name, bank (Preset or Internal), and program number.



Note Shift
(key transpose
setting for
selected Part).

Variation Send.

Chorus Send.

Reverb Send.

Part Pan
(stereo position of selected Part).

Expression
(not available; always set to maximum).

Part Volume.

(Not available in Single Part.)

Selected Part number. (Change this with the [PART \ominus/\oplus] buttons.)

For more information on the Single Part controls, see page 129.

- 2 Select the desired Part.
Use the [PART \ominus/\oplus] buttons.

Keep in mind that you should select only from the active Parts — the ones with a dark bar in the display. Other Parts can be selected and changed; however, they will not sound in the Performance.

- 3 Select the desired bank and Voice.
Do this in the same way as you did in the Multi mode. (See steps #2 and #3 on page 28.)

Details

- *Drum Parts are not available in the Performance mode. However, percussive Voices (numbers 113 – 120) can be selected.*

When editing a Performance:

- Decide how many Parts you want.

When creating a Performance, choose a preset that uses the same number of Parts (Voices) you intend to use. (You can easily tell how many Parts a Performance has by looking at the “level meters”; a dark bar appears above the Part numbers that are active.)



Two active Parts

- Start with a similar sound.

When editing, it's a good idea to start with a sound that's relatively similar to the one you intend to create. For example, if you want to create an soft, ethereal strings pad, you probably wouldn't start with a brash preset such as "Dance Chord"! This is not a hard and fast rule, however, since each preset is only a basic "template" over which you can easily change Voices and create a completely different sound.

On Your Own...

If you want to, try making changes to some of the other Part controls. The procedure is the same:

- 1) Select a Part with the [PART /] buttons.
- 2) Select a control for editing with the [SELECT /] buttons.
- 3) Change the setting with the [VALUE /] buttons.
- 4) Use the [EXIT] button as needed to return to “home base.” (When editing in Single Part, pressing once returns to Voice name and number; pressing once again returns to All Part.)

For more information on the specific Part controls, see page 96.

Edit Menu Parameters — Creating a Two-Voice Layer

Editing a Performance is almost identical to editing Parts in the Multi mode. The Edit menu tree is slightly different, and certain parameters are different as well. (For a full list and description of Performance Edit parameters, see page 131.)

In the following instructions, you'll use the Edit menu parameters to create a two-Voice Performance and "fatten" the sound using Detune.

Operation

- 1** Select the desired Performance.
For this example, select the Preset bank, then Performance number 027, "Jump-off."
- 2** Select Part 1.
Call up the Single Part controls (simultaneously press both [PART \ominus/\oplus] buttons), then select Part 1.
- 3** Solo the selected Part.
Press the [MUTE/SOLO] button twice (or repeatedly until the display below appears) to solo the selected Part.



Dark bar indicates Part 1 is being soloed.

Using Mute/Solo for effective editing:

The [MUTE/SOLO] button is a convenient tool, especially in editing Performances. Make sure that the Single Part controls are selected, then use the button to switch among the following three conditions. (In All Part, the [MUTE/SOLO] button simply mutes/un-mutes all Parts.)

Mute: Lets you hear what the other Parts of the Performance sound like, minus the selected Part.

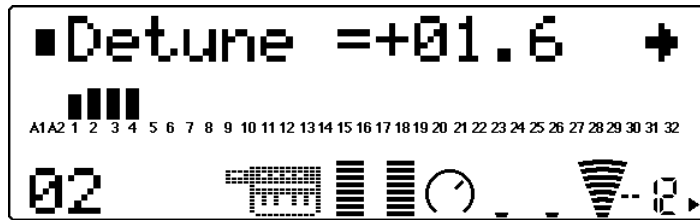
Solo: Lets you hear what the selected Part sounds like by itself.

Normal: Lets you hear all Parts together.

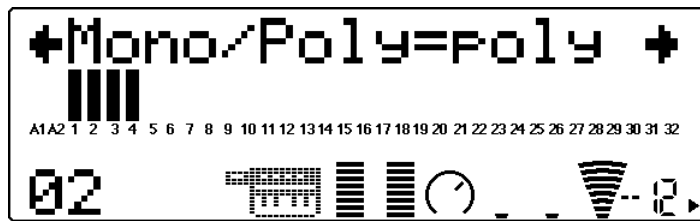
Use this function regularly as you edit the sound. While you're editing, you should solo the Part, so you can clearly hear the changes. Make sure to frequently use Normal (all Parts on), so you can hear the total effect of your edits.

For more on Mute/Solo, see page 85.

- 4 Select Part 1 and select a new Voice for it: "HeavySyn" (082).
- 5 Select Part 2 and select the "HeavySyn" Voice for it as well.
- 6 Select the "OTHERS" parameters.
Press the [EDIT] button. From the first Edit menu, select and call up "PART," then select and call up "OTHERS."



First Edit menu.



Second Edit menu.

- 7 Select and set the Detune parameter for Part 2.
Use the [SELECT] button to select the parameter, then the [VALUE] buttons or data dial. With Part 2 selected, increase this to "+2.2."
- 8 Set the Detune parameter for Part 1.
Keep the display at the Detune parameter and select Part 1. Decrease this setting to "-2.2."

This produces a "fat" layered sound. You can check how much this changes the sound by exiting to the Single Part display and using [MUTE/SOLO] button to listen to the Parts by themselves and together.

Now, try changing some other parameters.

- 9 Exit to the second Edit menu and call up the "VIBRATO" parameters.
Press the [EXIT] button once, then select and call up the "VIBRATO" parameters.

- 10** Change the Vibrato Rate, Depth, and Delay settings.
Select one of the Parts and set the Vibrato parameters as follows:

Rate:	+15
Depth:	+04
Delay:	+15



This produces a delayed vibrato for Part 1; in other words, the vibrato effect starts after the keys have been held for a while. Notes played staccato have no vibrato.

- 11** Exit back to the Single Part control display.
Press the [PLAY] button.

Setting Up a Keyboard Split


In the following steps, you'll assign two different Parts to separate sections of the keyboard.

Operation

- 1** Select Part 2 and select a new Voice for it: "NewAgePd" (089).
From the Single Part display, use [PART /] buttons to select Part 2. Then select Voice 089 in the normal way. (Keep Part 1's Voice set to "HeavySyn," 082, as set in step #4 of "Creating a Two-Voice Layer" above.)
- 2** Change the Note Limit High setting for Part 1.
The Note Limit parameters determines the range of notes over which the Part will sound. To set this:
 - 1) In Edit menu select and call up the "PART" menu, then do the same with the "OTHERS" menu.
 - 2) Select Part 1.
 - 3) Select and change the "NoteLimitH" setting to "B2." (Leave the "NoteLimitL" setting unchanged.)
- 3** Change the Note Limit Low setting for Part 2.
 - 1) Select Part 2.
 - 2) Select and change the "NoteLimitL" setting to "C3." (Leave the "NoteLimitH" setting unchanged.)

Playing notes below middle C on the keyboard plays the synth bass sound, while notes above middle C play the "New Age" pad.

Hint

- You may want to raise the octave setting of Part 1. To do this, exit to Single Part, select Part 1, then use the [SELECT ] buttons to select the Note Shift control. For a higher "HeavySyn" Voice, set this to "+00."

If you wish to save this newly created Performance, refer to “Saving Your Original Performance” on page 52.

On Your Own...

While you’re at it, try making changes to some of the other Edit (part) parameters. The procedure is the same:

- 1) Call up the Edit menus by pressing the [EDIT] button.
- 2) Select “PART” with the [SELECT ◀/▶] buttons, then press [ENTER].
- 3) Select the desired menu with the [SELECT ◀/▶] buttons, and press [ENTER].
- 4) Select the desired Part with the [PART ◀/▶] buttons.
- 5) Select the desired parameter with the [SELECT ◀/▶] buttons, and change the value with the [VALUE ◀/▶] buttons or data dial.
- 6) Use the [EXIT] button as needed to return to the Edit menu.

Using the Assignable Controller in a Performance

In this section, you’ll set up a Performance in which the modulation wheel on your connected keyboard can be used to “play” dynamic filter sweeps. This is done with the Assignable Controller functions. Here, we’ll simply show you what steps to follow; for more detailed information on the Assignable Controller and using it in the Multi mode, refer to page 59.

Operation

- 1 Select the “Dark Pad” Performance (Preset #025).
- 2 Select and call up “COM” (Common) from the first Edit menu.
- 3 From the Common menu, select the “AC1 CC No.” parameter and set it to “01.”
Use the [SELECT ◀/▶] buttons, then use the [VALUE ◀/▶] buttons or data dial.
- 4 Select the “AC1FilCtrl” parameter and set it to “+63.”
- 5 Select Part 1 and change some of its Filter settings.
The Filter settings determine how the Part responds to the “AC1FilCtrl” setting above. To set these:
 - 1) In Edit menu select and call up the “PART” menu, then do the same with the “FILTER” menu.

- 2) Select Part 1.
- 3) Select and change these parameters:
 - LPF Cutoff: -64
 - LPF Reso: +50

Provided your connected keyboard has a modulation wheel (most do), and all other settings are appropriate, you can create wide, dynamic filter sweeps by holding notes and moving the modulation wheel.

Saving Your Original Performance

Once you've edited a Performance, you can give it a different name and save it for future recall. The MU100R has 100 Internal memory locations for your original Performances.

For instructions on naming a newly created Performance, see page 132.

Operation

- 1 Press the [EDIT] button.
- 2 Select "STORE."



Either Preset or Internal Performances can be edited, but they can only be saved to the Internal bank.

- 3 Select a different Internal number, if desired.
Use the [VALUE \ominus/\oplus] buttons or data dial.
- 4 Press the [ENTER] button to save the Performance, or press the [EXIT] button to cancel.
Saving the new Performance will erase the old one. You can restore the factory-programmed Internal Performances from included floppy disk.

Assignable Controller (AC1)

The Assignable Controller (AC1) is one of the more powerful features of the MU100R — it gives you extraordinarily flexible and expressive real-time control over the Voices.

In this section, you'll:

- ▶ Learn about MIDI controllers and control numbers, and how they can affect the Voices.
- ▶ Set up your system for using the Assignable Controller.
- ▶ Try out some specific controller application examples, such as:
 - * Varying degrees of brightness on a Part
 - * Filter sweep and “wah” effects
 - * “Expression pedal” control of volume
 - * Variable filter control of specific drum sounds

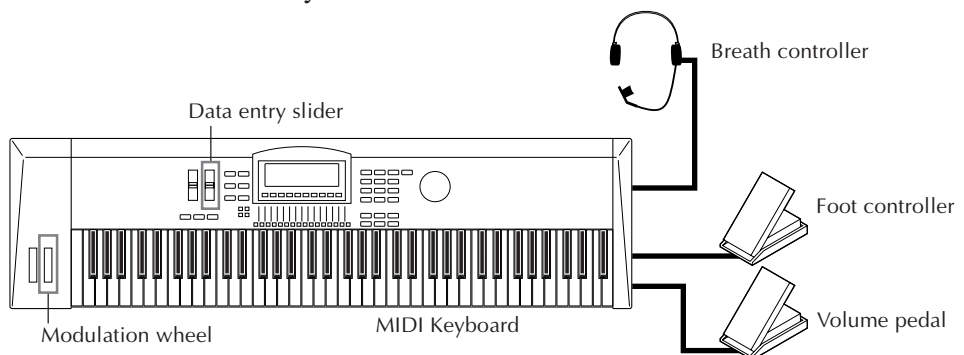
Hint

A good way to introduce yourself to some of the Assignable Controller applications is to explore the Performances — many of them feature Assignable Controller settings that let you change some aspect of the sound (usually with the modulation wheel on the connected keyboard). (Refer to the “Sound List & MIDI Data” booklet, and select/play Performances that mention “MW” in the “Description” section of the lists.)

Controllers and Control Numbers

In the MIDI world, “controllers” are used to change some aspect of the sound. In this section, we’ll work with “continuous” controllers — so named because they let you add musical, expressive effects that change smoothly over time (such as crescendos and decrescendos).

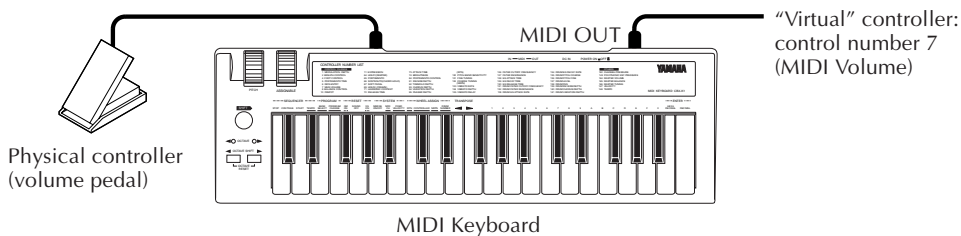
The illustration below shows some continuous controllers you’re likely to see on a MIDI keyboard.



NOTE

Your own MIDI instrument may not have all the controllers shown in the illustration.

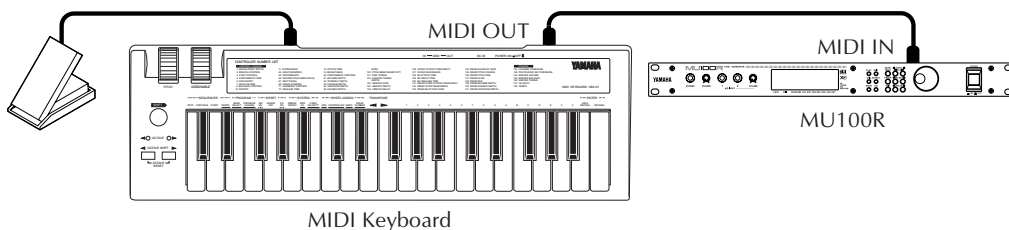
The actual, physical means of controlling (such as foot pedals, modulation wheels, etc. on a connected keyboard) are generally assigned to specific “virtual” control numbers. A few examples of these include the modulation wheel (at control number 1), foot controller (control number 4), and volume pedal (control number 7).*



* On some instruments, the control number for the physical controllers is fixed; some instruments allow you to assign a different control number to the existing control. (Refer to the owner's manual of your instrument for details. Also for more on control numbers, see the list on page 126 of this manual, and the “Sound List & MIDI Data” booklet.)

Control Numbers and the Actual Sound

The control numbers described above are in turn assigned to some specific aspect of the sound on the connected tone generator (for example, to volume, pitch modulation, dry/wet balance of an effect, etc.). As you might expect, control number 7 (Volume) affects the volume of the connected tone generator.

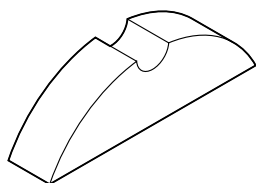


In this example, the foot controller of a keyboard controls the volume on the MU100R.

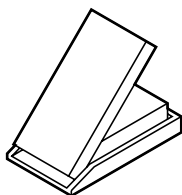
Assigning the Assignable Controller

The Assignable Controller on the MU100R lets you specify the control number to be used and determine which aspect or aspects of the sound will be affected. It also lets you set the degree to which the controller affects the sound.

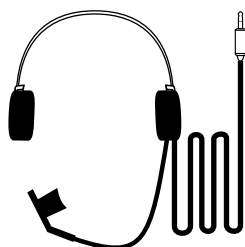
Physical Controllers



Modulation wheel,



Foot controller,



Breath controller, etc.

Controllers Parameters

Filter Control
 Amplitude (level) Control
 Variation Effect Control
 Insertion 1 Effect Control
 Insertion 2 Effect Control

(In Performance mode:)
 Filter Control
 Amplitude Control
 LFO Filter Modulation Depth

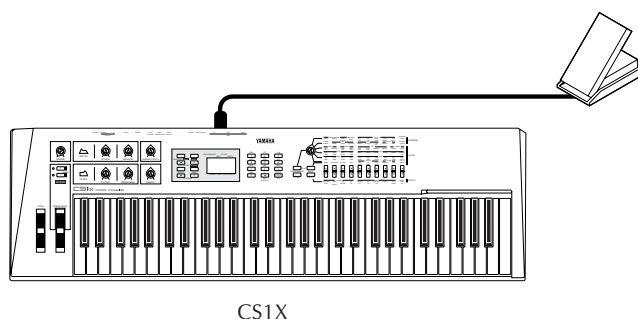
The best way to understand all this is to go through some actual examples, so go on to the next section and set up your system:

Using the Assignable Controller — Setting Up

Operation

- 1 Set up the MIDI keyboard or instrument.

Connect the foot controller to the appropriate jack, and make sure that the instrument is set to transmit over MIDI channel 1. (If your instrument doesn't have a foot controller, use another controller as described in the next step.)



- 2 Select the desired Part.

From the Multi Play mode, use the [PART \ominus/\oplus] buttons. For the sake of these instructions, select Part 1.

- 3 Call up and set the Assignable Controller number.

The control number of your instrument's controller must match the Assignable Controller control number. In this example and all the following instructions in this section, we'll use the foot controller. Since the foot controller is control number 4, the Assignable Controller must be set to "04."

To do this:

- 1) Press the [EDIT] button.
- 2) Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to select "OTHERS," then press [ENTER].
- 3) Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to select "AC1 CC No."
- 4) Set the value to "04" with the [VALUE \ominus/\oplus] buttons or data dial.

If you don't have a foot controller, you can use another controller, such as the modulation wheel (01) or volume pedal (07) — making sure that the Assignable Controller number matches.

Keep in mind that this setting applies only to the selected Part. Other Parts can have separate control number settings.

Modulation Wheel

The modulation wheel is the most common controller, and can be found on nearly every MIDI keyboard. It is usually used to produce LFO effects (regular wavering of the sound, like vibrato and tremolo). Since it is so common, the MU100R features various parameters that are reserved strictly for modulation wheel control.

In the Multi mode, the modulation wheel can control Pitch LFO. The Performance mode features both Pitch LFO and Filter LFO. For more information on these parameters, see page 132.

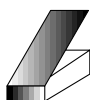
Using the Assignable Controller — Some Applications

Changing the Brightness on a Piano Voice

Though you can use the Equalizer (page 80) to adjust the brightness of a Part's Voice, you may find it convenient to be able to change the character of the sound “on the fly,” as you play. This uses the AC1 Filter Control parameter. Try this with the Grand Piano Voice (001:GrandP #).

Operation

- 1** Call up the Edit menu.
From the Multi Play mode, press the [EDIT] button.
- 2** Select and call up “OTHERS.”
Use the [SELECT ◀/▶] buttons, then press [ENTER].
- 3** Select “AC1FilCtrl” and set it to “+63.”
Use the [SELECT ◀/▶] buttons to select the Filter Control parameter, then set the value with the [VALUE −/+] buttons or data dial. Playing the Part at the minimum pedal position results in mellow “lounge” piano sound; maximum position results in a bright “rock’n’roll” piano.



Minimum position —
mellow sound.



Maximum position —
bright sound.

4 Try the setting on other Voices.

Exit to the Multi Play mode display (press the [PLAY] button) and select other Voices, trying out the new setting, and moving the foot controller up and down as you play. Try out some of these Voices, and notice how the sound changes:

SynBass2 (040), Saw Ld (082), Warm Pad (090) — for a “wah” filter sweep effect.

SynVoice (055), NewAgePd (089) — for gradually fading in a breathy sound.


For details on the AC1 Filter Control parameter, see page 112.

Details

- *Keep in mind that the degree and character of the AC1 Filter Control depends also on the Filter parameter settings for the Part (see page 112). Some Voices may not change at all unless these parameters are set appropriately. However, all of the example Voices above should clearly change in response to AC1 (if the Filter parameters are all at their default setting of 00).*

Resetting the parameter values

The simple operation below lets you instantly restore the factory preset values. Since it automatically cancels any edits you’ve made, you should use it with care.









1. Press the [MODE] button.
2. Select a different mode, then re-select the original one.
For example, if you were editing in the XG mode, use the [SELECT /▶] buttons to move the cursor to “TG300,” then back to “XG.”

Doing this automatically resets all Part settings to the factory-programmed condition and cancels any edits you made in the Multi mode (including whatever Voices you selected).

Expressive Volume Control of a Part

This example shows you how to use the foot controller as an expression pedal. This may come in handy when use of MIDI Volume (#7) or Expression (#11) is unavailable.

Operation



- 1** Select the desired Part and Voice.
Keep the settings you made to Part 1 (in the last example), and select a new Part/Voice for this example. From the Multi Play mode, select Part 2 with the [PART /] buttons. (This should be set to MIDI channel 2; set the MIDI channel on the connected keyboard accordingly.) A good Voice for this application would be PercOrg# (018); select this with the [VALUE /] buttons or data dial.
- 2** Set the Assignable Controller number for the Part.
Set this to "04." (Refer to step #3 in "Using the Assignable Controller — Setting Up" above.)
- 3** From the "OTHERS" parameters, select "AC1AmpCtrl" and set it to "+63."
Use the [SELECT /] buttons to select the Amplitude (level) Control parameter, then set the value with the [VALUE /] buttons or data dial.

Now, play the organ sound and use the foot controller to play expressive volume swells. For details on the AC1 Amplitude Control parameter, see page 113.

Expressive Control of Individual Drum Sounds

In this example, the foot controller is used to produce expressive timbre changes and filter sweeps on selected drum sounds, using the Filter Control parameter.

Operation

- 1** Select a Drum Part.
Select Part 10 with the [PART /] buttons, and make sure that the connected keyboard is set to transmit over MIDI channel 10.
- 2** Set the Assignable Controller number for the Part.
Set this to "04." (Refer to step #3 in "Using the Assignable Controller — Setting Up" above.)

- 3 Set the AC1 Filter Control to “+63.”
Since you’ve called up the “OTHERS” parameters in the previous step, select “AC1FilCtrl” (with the [SELECT ◀/▶] buttons) and set it to “+63” (with the [VALUE –/+] buttons or data dial).
- 4 Select the “DRUM” parameters.
Call up the Edit menu, then select “DRUM” (with the [SELECT ◀/▶] buttons) and press [ENTER].
- 5 Select “A3: Cabasa.”
Play A3 on the connected keyboard, or use the [PART –/+] buttons to select “A3.”
- 6 Set some of the filter parameters for the Cabasa sound.
Select using [SELECT ◀/▶] button and set the two parameters below as indicated:

LPF Cutoff:	–40
LPF Reso:	+60

Now, play the sound and move the foot controller as you play. Notice how this gives you dynamic, expressive control over the timbre of the selected sound — without affecting the other sounds of the drum kit.

Hints

- Since virtually all sequencers record controller data as well as note data, you can record these expressive sound changes into your song tracks — either while you record the notes themselves, or separately for a previously recorded track.
- The negative values of the AC1 parameters let you control the sound by moving the controller in the opposite direction. For example, moving the foot controller to the minimum position produces the greatest change in the sound. An application of this might be to create a pedal-controlled crossfade between two Parts.
To do this:
 - 1) Set two Parts to the same MIDI channel. (See page 96.)
 - 2) Set each Part to a different Voice.
 - 3) Set the “AC1AmpCtrl” parameter for one Part to “–64,” and the same parameter for the other Part to “+64.”
- The Assignable Controller can also be used to control one parameter of a selected effect.

On Your Own...

While you're at it, try making some of your own settings. The procedure is the same:

- 1) Select the desired Part and Voice.
- 2) Call up the Edit menus by pressing the **[EDIT]** button.
- 3) Select "OTHERS" with the **[SELECT ◀/▶]** buttons, then press **[ENTER]**.
- 4) Set the Assignable Controller number for the Part.
- 5) Select the appropriate parameters with the **[SELECT ◀/▶]** buttons.
 - If you are using the AC1 Filter Control, make sure to appropriately set other filter settings (in "FILTER" parameters, page 100, and/or "DRUM" parameters, page 114).
 - Select the AC1 parameters in the "OTHERS" parameters. (In the Performance mode, these are in the "COMMON" parameters; see page 133.)
 - If you are using a Drum Part, select the desired drum sound, either by playing the corresponding key or by using the **[PART ◯/⊕]** buttons.
- 6) Change the value, with the **[VALUE ◯/⊕]** buttons or data dial.
- 7) Use the **[EDIT]** button as needed to return to the Edit menu.

Playing and Editing VL Voices

The VL section of the MU100R is a tone generator incorporating Yamaha's revolutionary "Virtual Acoustic Synthesis" tone generation system. Based on sophisticated computer physical modeling technology, Virtual Acoustic Synthesis produces sound that is more realistic, more expressive, and more musical than any other system to date.

The VL section is a monophonic* tone generator, with its own set of separate controls, yet is completely integrated with the other Parts of the MU100R. VL Voices can be used only in the XG and Performance modes, and only one Part can be used to play a VL Voice at a time.

For more details on VL Voices, see "About the VL Voice Section," below.

* A "monophonic" tone generator plays only one note at a time.

In this section, you'll learn how to:

- ▶ Learn about the VL.
- ▶ Select VL Voice banks and VL Voices.
- ▶ Edit VL Voices.

About the VL Voice Section

Main Features

- Allows you to play back song data which has been programmed with the VL-XG Voice data.
- Allows you to simulate the sound of acoustic musical instruments by editing the VL parameters directly from the MU100R (page 119).
- Allows you to play VL Voices with a WX11 Wind MIDI Controller (via BT7) connected by MIDI to the MU100R.

VL Voice Edit

• **Editing VL-XG Voices**

If you want to edit the existing MIDI files using VL Voices from the VL tone generator section, you'll need to use an external sequencer which is capable of editing system exclusive messages and transmitting the parameter changes to the VL tone generator section. See MIDI Data Format for more information on system exclusive messages.

Virtual Acoustic Synthesis

Unlike previous tone generation systems which use oscillators, function generators, preset waveforms or samples to produce sound, Yamaha Virtual Acoustic (“VA”) Synthesis applies sophisticated computer-based “physical modeling” technology to musical sound synthesis. In the same way that computer “models” are used to simulate weather systems or the flight characteristics of aircraft in the design stage, the VL tone generator section simulates the very complex vibrations, resonances, reflections and other acoustic phenomena that occur in a real wind or string instrument.

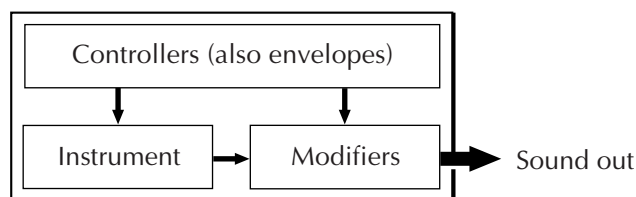
VA Advantages

The VL tone generator section offers many advantages in terms of musical performance. Not just in terms of sound, but also in terms of the “behavior” that makes acoustic instruments so ... well, musical! Yamaha Virtual Acoustic Synthesis is simply the most musical tone generation system ever created.

- The VL tone generator section sounds better, has more depth, and is more realistic in the musical sense than any other tone generation system.
- Simply playing a note in the same way does not always produce precisely the same sound. The instrument is responsive and “alive”.
- Note-to-note transitions have the same continuity exhibited by acoustic instruments. What goes on in between the notes is just as important musically as the notes themselves.
- It has extraordinary expressive capability. Rather than simply controlling parameters like volume or pitch, you can control characteristics such as breath and reed pressure with appropriate complex effects on the timbre of the sound.

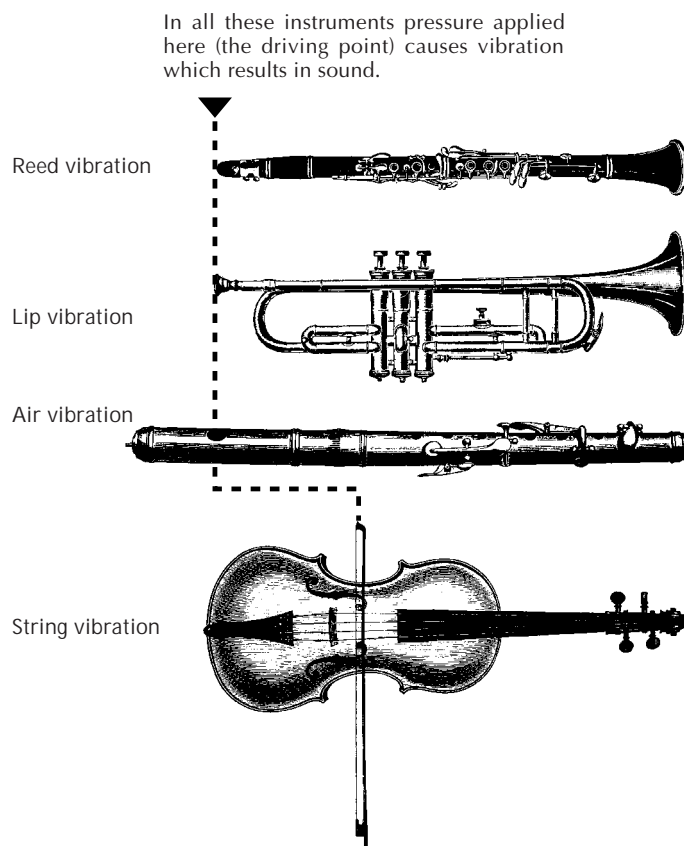
VL Tone Generator Model

The overall VL Tone Generator model or “algorithm” consists of three main blocks: the instrument, controllers, and modifiers. In schematic form these blocks are arranged as follows:

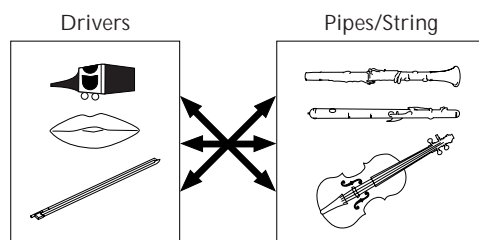


The Instrument

The key block in this algorithm is the instrument, since it is here that the fundamental tone or “timbre” of the sound is defined. The instrument model consists primarily of a driver — the reed/mouthpiece, lip/mouthpiece, or bow/string system — and a resonant system corresponding to the tube and air column or string.



One of the remarkable features of the Virtual Acoustic Synthesis system is that just about any driver can be used with any type of pipe or string.



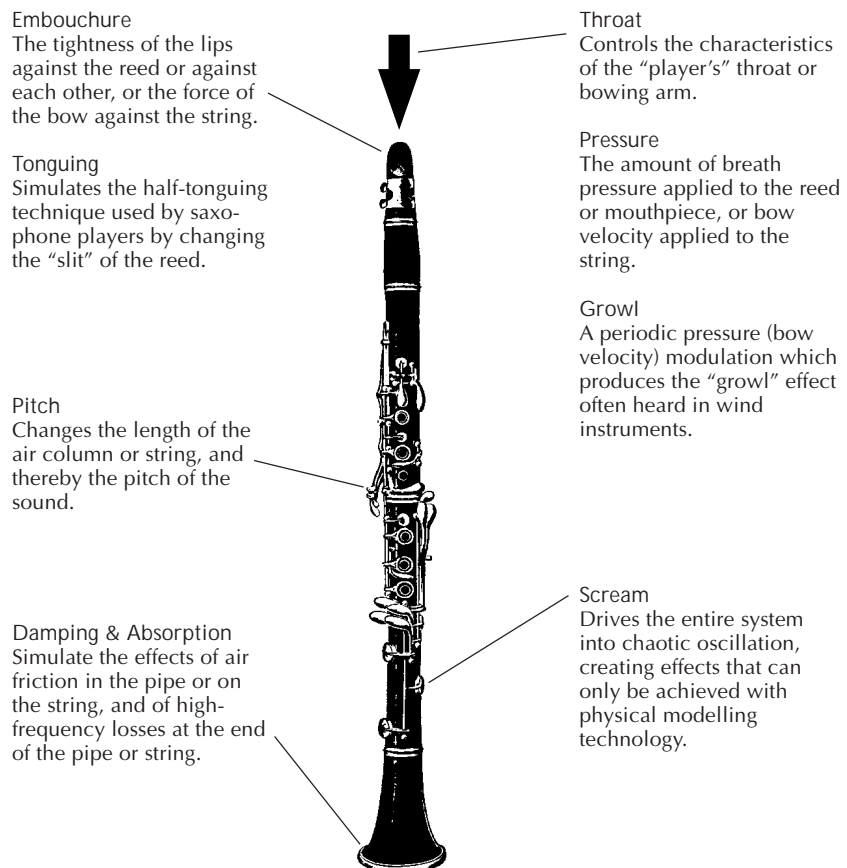
NOTES

- The sound thus produced is amplified and sustained by the body of the instrument.
- The pitch of the sound is determined by the length of the air column or string, and the timbre is a complex product of the driving source (reed, lip, air, string), the shape of the resonant cavity, the materials from which the instrument is made, etc.

The Controllers

The input to an acoustic wind instrument comes from the player's lungs, trachea, oral cavity, and lips. In a string instrument it comes from the player's arm movement, transmitted to the string via a bow. These elements actually form an important part of the sound generating system and, in the VL tone generator section, are included in the controllers block. The player also influences the sound of the instrument by playing the keys, tone holes, or frets, and this aspect of control constitutes another part of the controllers block. These and other control parameters provided by the VL tone generator section are listed in the illustration below.

In essence, the controller parameters determine how the instrument "plays". All of these parameters can be assigned to any external controller that can be used with the VL tone generator section: breath controller, foot controller, modulation wheel, etc. The pressure parameter, for example, will normally be assigned to a breath controller so the player can control the dynamics of the instrument by varying the breath pressure applied to the controller — a natural, instinctive way to play wind-instrument Voices. At the same time the growl and throat parameters might also be assigned to the breath controller in order to achieve life-like response and effects.



The Modifiers

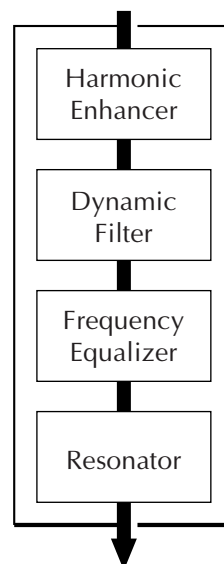
The modifiers block consists of 4 sections as shown in the diagram. Although these may appear to be simple effects, they are actually intimately related to the VL's sound-producing model and have a significant effect on the sound.

Harmonic Enhancer

The Harmonic Enhancer determines the harmonic structure of the sound to the extent that it can produce radical timbral variations within an instrument “family” (e.g., saxophones).

Dynamic Filter

This section is similar to the dynamic filters found in many conventional synthesizers, with high-pass, bandpass, band elimination, and low-pass modes. Some filter parameters are available via the VL tone generator section controls.



Frequency Equalizer

This is a 5-band parametric equalizer with frequency, Q (bandwidth), and level control. The equalizer also has pre-EQ high- and low-pass filters as well as key scaling capability for precise response control throughout the instrument's range.

Resonator

The Resonator uses simulated “resonator” pipes or strings and delays to produce a “woody” resonance effect — although it has little or no effect on some Voices. The Resonator is employed as one of the preset Voice parameters.

Voice Organization

The VL Voices have each program number and are organized into 13 banks. Refer to the Voice list in the “SoundList & MIDI Data” booklet.

- **Banks 112 through 119: VL-XG Banks** (Bank Select MSB: 81 or 97)

The Voices from the PRESET 1 and PRESET 2 banks are assigned to MIDI banks and program change numbers conforming to the Yamaha XG format.

IMPORTANT

Since the VL tone generator section does not have a full set of XG-compatible Voices, however, some Voice numbers will be skipped (e.g., 22, 23, 25, 27, etc.). If the truncated number is designated, no sound will be produced (when Bank Select MSB is 81) or the XG Voice in the bank 1 will sound instead (when Bank Select MSB is 97).

- **Bank 000: PRESET 1**

The PRESET 1 bank contains 128 preset Voices which have been created primarily to be played via a keyboard.

- **Bank 001: PRESET 2**

The PRESET 2 bank contains 128 preset Voices which have been created to provide maximum expressive capability when played with a breath controller or a WX-series Wind MIDI Controller.

- **Bank 002: CUSTOM**

The CUSTOM bank has 6 memory locations (program numbers 001 - 006) in which you can load the Voices created by the Yamaha VL70-m.

The loaded Voices cannot be backed up. When the MU100R is turned on, the Voices are reset to their defaults, the sound-effect type Voices from the PRESET banks.

- **Bank 003: INTERNAL**

The internal Voices of the VL70-m can be received and loaded (bulk data). The Internal bank has 64 memory locations in which Voices you have edited can temporarily be stored.

The loaded Voices cannot be backed up. When the MU100R is turned on, the Voices are reset to their defaults, the Voices from the Preset banks, set up to be played via a WX-series Wind MIDI Controller.

IMPORTANT

The edited Voices cannot be stored in the Internal Voice bank. If you want to keep your edited Voice, save it as a part of the song data using the sequencing software which is capable of editing and transmitting system exclusive messages.

NOTE

- If you save the MU100R Performance mixed and layered with a VL Voice, the VL Voice number and its VL parameter setting edited on the MU100R panel will be stored.
- Note that the “program numbers” here are 001~128 and the “MIDI program change numbers” are 000~127. When selecting Voices (programs) using an external MIDI device, subtract a value of “1” from the “program number” to match the “MIDI program change numbers.”

Selecting Banks

- Use the MIDI bank MSB (control number 00) and LSB (control number 32) numbers listed at right to select VL banks from an external MIDI device.

BANK	MSB	LSB
BANK 112	97 or 81	112
BANK 113	97 or 81	113
BANK 114	97 or 81	114
BANK 115	97 or 81	115
BANK 116	97 or 81	116
BANK 117	97 or 81	117
BANK 118	97 or 81	118
BANK 119	97 or 81	119
PRESET 1	33	0
PRESET 2	33	1
CUSTOM	33	2
INTERNAL	33	3



Selecting VL Voice banks and VL Voices

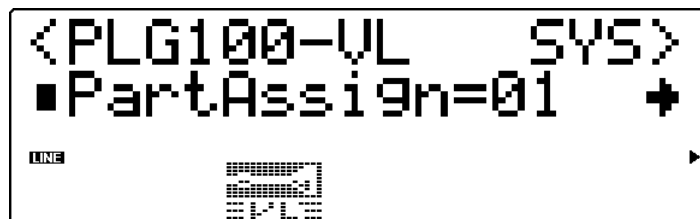
The VL Voices can be selected in the much the same way as the XG Voices.



Selecting VL Voices from an External Device

If you want to control the MU100R including the VL tone generator section by using sequencing software and/or use the tone generator without panel buttons (e.g., sound card), you'll need to transmit the MIDI messages such as XG System On, Bank Select MSB/LSB and program change to the MU100R by using the sequencing software which is capable of editing and transmitting system exclusive messages. Refer to the MIDI Data Format in the "Sound List & MIDI Data" booklet.

Operation

- 1** Make sure that the XG or Performance mode is selected.
For information on selecting the Sound Module mode, see page 172.
- 2** Assign one of the Parts for playing VL Voices.
Only one Part can be used for the VL Voices, and this must be properly assigned.
To do this:
 - 1) Press the [UTIL] button.
 - 2) Select "PLUGIN" (with the [SELECT ] button) and press the [ENTER] button.
 - 3) Select "PLG100-VL" (VL Voices) with the [SELECT ] button, and press [ENTER] again.

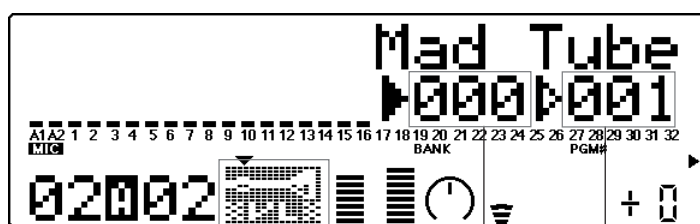


- 4) Select the Part Assign parameter (with the [SELECT ] button).
- 5) Set the desired Part number (01– 16 for XG, 01 – 04 for Performance) with the [VALUE ] buttons or data dial.

- 3 Return to the Play mode, and select the appropriate Part. Press the [PLAY] button, then use the [PART \ominus/\oplus] buttons to select the same Part as you assigned in step #2 above.



- 4 Select one of the VL bank numbers. Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to highlight the bank number parameter, then use the [VALUE \ominus/\oplus] buttons or data dial to select one of the VL Voice banks. (The VL Voice banks follow the "SFX" bank. For this example, select VL bank 000.)



VL Voice icon. ————— Bank number. ————— Program number.

- 5 Select the desired Voice. Use the [SELECT $\blacktriangle/\blacktriangleright$] buttons to highlight the program number parameter, then use the [VALUE \ominus/\oplus] buttons or data dial to select one of the VL Voices.
- 6 Play the Voice. Play this new Voice from the connected MIDI keyboard. Go on to select other VL Voices in this bank, and from other banks as well. For details on the available VL Voice banks, see page 68.

Editing a VL Voice

This section shows you the basic steps in editing VL Voices. The VL parameters here are completely different from those of the normal Voices, the ones you edited on page 36. (For more information on the VL Edit parameters, see page 119.)

Keep in mind that in editing the VL Voices, you are not changing the Voice itself, but rather the Part the Voice is assigned to. This means that when you select a different VL Voice for the Part, the edited settings apply to the new Voice, whether they're appropriate or not.

You can use this to your advantage by recording all VL Part settings to your sequencer, before the actual song data. This ensures that the VL Part will play exactly as intended for each song.

Also remember that any edits you make to the VL Part are automatically saved as the power on defaults. In other words, the next time you turn on the power, the previous condition of the VL Part is automatically recalled. If you want to save one "set" of edits (for example, for use with a specific song) before creating another set, you must first save the current setup to a sequencer or MIDI data filer. (For details, see page 18.)

NOTE

The VL Edit parameters are not available for the normal Voices or Drum Voices.


Operation

- 1 Select the VL Part.

In order to edit the VL Voice, you must first select the Part to which the VL Voice has been assigned. Also make sure that a VL Voice has been selected for the Part. (See "Selecting VL Voice banks and VL Voices" above.)

- 2 Call up the Edit menu.
Press the [EDIT] button.



- 3 Call up the VL Edit menu.
Use the [SELECT >] button to select "PLUGIN" in the display, then press [ENTER].

- 4 Select the desired parameter.
Use the [SELECT ◀/▶] buttons to select the parameter for editing. For complete descriptions and details of all VL Edit parameters, see page 119.
- 5 Change the parameter value or setting.
Use the [VALUE −/+] buttons or data dial to change the value or setting.
- 6 Return to the Play mode after finishing editing.
Press the [PLAY] button to return to the Play mode.

NOTE

There are additional VL-related parameters in the Utility mode. For more information on these parameters, refer to page 169.

To call up these parameters:

1. Press the [UTIL] button.
2. Use the [SELECT ▶] button to select "PLUGIN," then press [ENTER].
3. If it isn't already selected, select "PLG100-VL" with the [SELECT ◀] button, then press [ENTER].
4. Select and edit the parameters in the normal way, using the [SELECT ◀/▶] buttons, then the [VALUE −/+] buttons or data dial.

Effects

To complement the huge variety of Voices and the 32-Part multi-timbral capacity, the MU100R features a built-in multi-effect processor with seven independent digital effects: Reverb, Chorus, Variation, Insertion 1 and 2, Harmony, and EQ. (In this section, we'll examine the first five; Harmony and EQ are covered on pages 77 and 80, respectively.)

These high-quality effects provide an enormous amount of sound processing power and flexibility. Combine these with the Part controls in the Multi mode, and you have a “virtual” 34-channel mixer at your disposal, with per-channel EQ, master EQ, and six effect sends — complete with six independent effect units!

The following instructions assume that the XG mode is selected (page 26). However, using effects in the Performance mode and the other modes is done in virtually the same way.

In this section, you'll learn how to:


















- ▶ Set the Reverb Type and adjust the amount applied to a Part.
- ▶ Set the Chorus Type and adjust the amount applied to a Part.
- ▶ Use the Variation effects to apply distortion to a Part.

Using Reverb and Chorus

Judicious use of Reverb creates a sense of space and enhances the realism of the Voices. The selected Reverb Type is applied to all Parts; however, the amount of Reverb for each Part can be adjusted. This lets you add special textures to the mix of a song, such as “drenching” one Part in Reverb while another Part is kept “dry.”

The Chorus effect section features a variety of pitch modulation effects. These let you subtly enhance or “fatten” the sound, or completely transform the sound in wild and unique ways. As with Reverb, only one Chorus Type can be used for all Parts; however, the amount of Chorus for each Part can be adjusted.

Operation

- 1 First, set the Send and Return controls to appropriate levels.
Before you actually change the Reverb or Chorus settings, you should set the Send and Return controls, in order to properly hear the effect and the changes you make.
To do this:
 - 1) Select the desired Part from the Multi Play mode Single Part display. (Use the [PART /] buttons.)
 - 2) Select "RevSend" (Reverb Send) or "ChoSend" (Chorus Send) with the [SELECT /] buttons, and set it to "40" or higher.
 - 3) Select the All Part display (by pressing both [PART /] buttons).
 - 4) Select "RevRtn" (Reverb Return) or "ChoRth" (Chorus Return) with the [SELECT /] buttons, and set it to "60" or higher.
- 2 Call up the Effect Edit mode.
Press the [EFFECT] button.
- 3 Select and call up the desired effect section.
Select "REV" (Reverb) or "CHO" (Chorus) with the [SELECT /] buttons.
- 4 Select and change the Type parameter.
Use the [SELECT ] button to select "Type," then change the setting with the [VALUE /] buttons or data dial.
- 5 Edit other parameters as desired.
Once you've selected a Reverb or Chorus Type, you can adjust the other parameters.
For Reverb, try changing the Reverb Time and HPF Cutoff and listen to how the changes affect the Reverb sound. For Chorus, the parameters differ depending on the selected Chorus Type. Use the [SELECT /] buttons to select the parameter, then adjust the value with the [VALUE /] buttons or data dial.

For a list of Reverb Types and other information on Reverb, see page 142. For a list of the available parameters for each Reverb Type, refer to the "Sound List & MIDI Data" booklet.

For a list of Chorus Types and other information on Chorus, see page 143. For a list of the available parameters for each Chorus Type, refer to the "Sound List & MIDI Data" booklet.



Applying Distortion to a Part —





Using the Variation Effects

The Variation effect section provides a wealth of additional effects. With a total of 70 different Types, it features some of the same effects found in the Reverb, Chorus and Insertion sections. This is not mere redundancy; it allows you to use two Types of Reverb or Chorus on different Voices. For example, you may want to have a Symphonic effect on one Voice and Phaser on another. Variation also gives you many special effects not found in the Reverb and Chorus sections, such as Delay, Gate Reverb, Wah and Pitch Change.

The Variation effect can be applied either to all Parts (as with Reverb and Chorus), or to a single selected Part (as described below).

Operation

- 1** Set Variation Connection to “INS” (Insertion).
To use Variation with a single Part, the Variation Connection parameter should be set to Insertion.
To do this:
 - 1) Press the [EFFECT] button.
 - 2) Select “VAR” (with the [SELECT /▶] buttons) and press [ENTER].
 - 3) Select “VarConnect” (with the [SELECT ▶] button), and change the setting to “INS” (with the [VALUE ◀/▶] buttons or data dial).
- 2** Select the desired Part and set its Variation Send control to “on.”
To do this:
 - 1) Return to the Multi Play mode Single Part display (press the [PLAY] button), then select the desired Part (with the [PART ◀/▶] buttons).
 - 2) Select “VarSend” (with the [SELECT /▶] buttons), and set it to “on” (with the [VALUE ◀/▶] buttons or data dial).
- 3** Return to the Variation parameters, select the Distortion Type, and make other necessary settings.
To do this:
 - 1) Press the [EFFECT] button.
 - 2) Select “VAR” (with the [SELECT ◀/▶] buttons) and press [ENTER].
 - 3) Select “Type” (with the [SELECT ▶] button), and change the setting to “DISTORTION” (with the [VALUE ◀/▶] buttons or data dial).

- 4) If you cannot hear the Distortion effect clearly, select the “Dry/Wet” parameter (with the [SELECT /] buttons) and adjust it (with the [VALUE /] buttons or data dial) until the sound is appropriate.
- 5) Using the same method (as in step #4), select and adjust other important Distortion parameters as needed, such as “Drive” and “OutputLvl” (Output Level).

Now, play the Part and hear how Distortion affects the sound. Select other Types and play with them as well.

The Variation parameters differ depending on the selected Variation Type. For a list of Variation Types and other information on Variation, see page 144. For a list of the available parameters for each Variation Type, refer to the “Sound List & MIDI Data” booklet.

Details

- When Variation is set for use with a single Part (Insertion), only Variation Send is available. (The Dry/Wet parameter in Variation Edit effectively performs the same function as Variation Return in this case; see page 145.) Also, Variation Send can be set to “on” for only one Part.
- When Variation is set for use with all Parts (System), both Variation Send and Return must be set to appropriate values. (The operation is the same as step #1 in “Using Reverb” and “Using Chorus” above.)

For more information, refer to “About the Effect Connections — System and Insertion” on page 152.

Insertion 1 and 2 Effect Sections

The Insertion 1 and 2 sections provide additional signal processing power. Each of the Insertion sections can be applied to a single selected Part, and each features 43 effect Types.

For a list of Insertion Types and other information on Insertion, see page 146. For a list of the available parameters for each Insertion Type, refer to the “Sound List & MIDI Data” booklet.

Harmony Effect

This sophisticated effect takes the sound of your voice (via a microphone and one of the A/D inputs) and reproduces it as a harmony vocal, providing up to four-part harmonies (including your original voice).

You can pre-program the pitch interval of the harmony, or you can “play” the harmony from your connected MIDI keyboard (or sequencer), and even have the harmony interval change, depending on the chord you play. As long as your own voice is in pitch and you play the appropriate chords, the MU100R ensures that the harmony “voices” will be enharmonically correct and stay in pitch with the chord changes of the song.

Though the Harmony effect can be applied to any Part, it is designed primarily to be used with vocal input. It also includes a “gender changer” effect that turns a male voice into a female voice (or vice versa), and a vibrato effect that automatically adds a warm, natural vibrato to your voice.

In this section, you’ll learn how to:

- ▶ Set up your system and the MU100R for the Harmony effect.
- ▶ Select a Harmony Type and Mode.
- ▶ “Play” vocal harmonies from a connected MIDI keyboard, to match the melody you sing.

Using the Harmony Effect

Operation

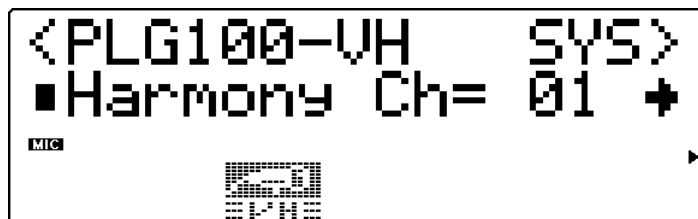
- 1** Set up the MIDI keyboard.
Connect a MIDI keyboard (as described on page 17) and set the MIDI transmit channel to 1.

Hint

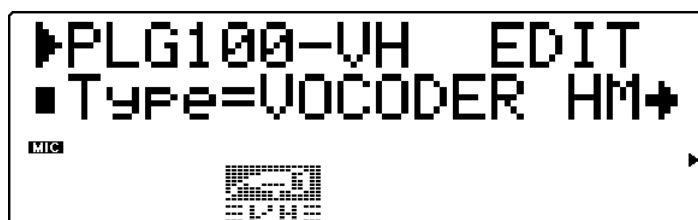
- Alternately, you could set up a sequencer in this step and use the sequencer’s song data to control the Harmony effect and determine specific harmony notes. In this way, when you play back the song and sing along with it, all the appropriate backing harmonies will be produced automatically.

- 2** Connect a microphone to the MU100R and set up the A/D Part.
Connect a microphone to the A/D INPUT 1 jack, select Part “A1,” then select the “Mic” preset (bank #000, program #002). (Refer to the section “Using the A/D Inputs” on page 87, for detailed instructions.)

- 3** Call up the Harmony System menu (in the Utility mode).
To do this:
- 1) Press the [UTIL] button.
 - 2) Select "PLUGIN" with the [SELECT ◀/▶] buttons, and press the [ENTER] button.
 - 3) Select "PLG100-VH" (Harmony) with the [SELECT ▶] button, and press the [ENTER] button.
- 4** Set the Harmony Channel to 1.
Use the [SELECT ◀] button to select "Harmony Ch" (Harmony Channel), then set the parameter to "01" to match it with the transmit channel of the connected MIDI keyboard.










- 5** Call up the Harmony Edit menu.
To do this:
- 1) Press the [EFFECT] button.
 - 2) Select "PLG" (with the [SELECT ▶] button) and press the [ENTER] button.
 - 3) At the "PLG100-VH" (Harmony) menu, press [ENTER] again.



- 6** Set the Harmony Insert Part to the corresponding A/D Part.
Use the [SELECT ▶] button to select "Ins Part" (Insert Part), then set the parameter to "AD01".



- 7 Set the Harmony Type to Chordal.
Select "Type" (with the [SELECT ] button), then set the parameter to "CHORDAL HM" (with the [VALUE / ] buttons or data dial). When set to Chordal, chords you play on the connected MIDI keyboard determine the notes of the Harmony effect. (For more information on Chordal and the other Types, see page 147.)
- 8 Set the Harmony Mode to "trio above".
Select "Mode" (with the [SELECT / ] buttons), then set the parameter to "trio above" (with the [VALUE / ] buttons or data dial).
- 9 Sing into the microphone and play chords on the MIDI keyboard.
The Harmony function recognizes thirty-four different chord types. Chords can be played at any register on the keyboard and result in the same harmonies. Experiment with different chord types (major, minor, seventh, etc.) and hear how the harmonies change — even while holding the same pitch with your voice.

Hints

- Keep in mind that you don't need to hold the chord down — simply play it once at the point you want the harmony to change, then release it and continue singing until the next chord change.
- If another Part is set to MIDI channel 1, you'll hear its Voice playing the chord. To keep this Voice from sounding, use the [MUTE/SOLO] button to mute the part, or turn its Volume setting down.

On Your Own...

Here is a summary of the steps you should follow when using the Harmony effect:

- 1) Set up one of the A/D input Parts, and select one of the presets.
Do this if you want to apply Harmony to an external source (such as a microphone or guitar). (See page 87.)
- 2) Set the Harmony Channel to match the transmit channel of a connected MIDI keyboard.
Do this if you want to control the Harmony effect via MIDI.
Path: UTILITY ➡ "PLUGIN" ➡ "PLG100-VH" ➡ "Harmony Ch"
- 3) Set the Insert Part to the corresponding Part.
For the A/D inputs, this would be set to "AD01" or "AD02."
Path: EFFECT ➡ "PLG" ➡ "PLG100-VH" ➡ "Ins Part"
- 4) Make other appropriate settings in the "PLG100-VH" menu (called up in step #3 above).
Most important of these are Harmony Type, Harmony Mode, and Lead/Harmony Balance. (See page 147.)

Equalizer (EQ)

The MU100R features an extensive set of equalization controls that give you comprehensive control over the tone quality — both of individual Parts and over the entire instrument sound.

In this section, you'll learn how to:

- ▶ Use the Part EQ edit parameters to adjust the tone of a specific Part.
- ▶ Use the main EQ to adjust the overall tone of the MU100R.

Adjusting the Tone of a Specific Part — Part EQ

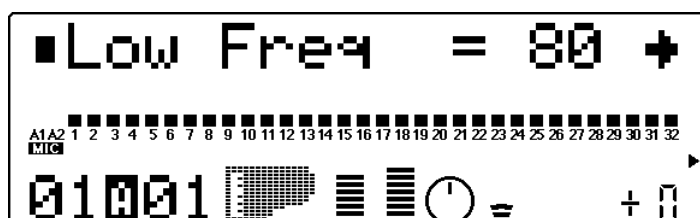
The Part EQ parameters give you two-band (low and high frequencies) control over the sound of individual Parts. These can be used in both the Multi mode and the Performance mode.

NOTE

When a Drum Part is selected, the EQ menu is not available. However, the same EQ parameters can be adjusted for each individual drum sound in the “DRUM” menu. (See page 117.)

Operation

- 1 Select the desired Part.
From the Multi mode Single Part display, use the [PART \ominus/\oplus] buttons to select the desired Part (excepting Drum Parts).
- 2 Call up the EQ parameters.
Press the [EDIT] button, then select “EQ” (with the [SELECT $\blacktriangleleft/\blacktriangleright$] buttons) and press the [ENTER] button.
- 3 Select the general frequency range — low or high.
In this example, we'll boost the bass of the Part, so select “Low Freq” (Low Frequency) with the [SELECT $\blacktriangleleft/\blacktriangleright$] buttons.



- 4** Set the specific frequency to be adjusted.
For this example, set the Low Frequency value to “315” (Hz).
- 5** Select the Low Gain parameter and adjust the value.
For this example, set the Low Gain value to “+35.” Play the Voice (especially in the lower octaves) and hear how the sound has changed.

NOTE

Depending on the Voice selected for the Part (and depending in which octave you play the Voice), you may or may not hear very much change in the sound at certain frequencies.

If you want, try adjusting the High Frequency/Gain parameters as well.

EQ in the Performance Mode

The EQ settings of individual Parts in the Performance mode can be adjusted in the same way:

- 1) Select a Part (in the Single Part controls).
- 2) Press the [EDIT] button.
- 3) Select “PART”, then press the [ENTER] button.
- 4) Select “EQ”, then press the [ENTER] button, and edit the parameters as shown in steps #3 – #5 above.

Adjusting the Overall Tone — Main EQ

The main EQ section gives you five-band control (at specific frequencies) over the entire sound of the MU100R. Special presets are also available for instantly changing the tone to suit different types of music.

Operation

- 1 Call up the “EQ TYPE” parameter and select the desired EQ preset.
First press the [EQ] button, then use the [SELECT ◀/▶] buttons to select the parameter. Then use the [VALUE -/+] buttons or data dial to select the desired preset.
- 2 If desired, change the values of the five different bands.
Use the [SELECT ◀/▶] buttons to select the parameter, then change the value with the [VALUE -/+] buttons or data dial.



- 1) The graphic EQ display shows the EQ curve.
- 2) The EQ icon's sliders indicate current settings and move as the value is adjusted.

The changes you make to a selected EQ preset are maintained even when the power is turned off. However, selecting another preset automatically cancels your original settings.

For more information on the Equalizer effects, see page 155. Also, refer to the Multi Mode Equalizer Lock parameter (page 158).

Individual Outputs

This convenient feature allows you to send the output of a selected Part or Parts to the INDIV. OUTPUT jacks. For Drum Parts, you can even select specific drum sounds to be output through these jacks.

In general, the extensive built-in effects and other Part controls of the MU100R provide all you need for processing and mixing complex multi-Part songs. However, there may be times (in studio recording, for instance) when you want to “sweeten” or process a certain Voice or sound with a favorite outboard effect unit, or record a Part to a separate track of a tape recorder. The individual outputs are designed just for these kinds of applications.

In this section, you’ll learn how to:

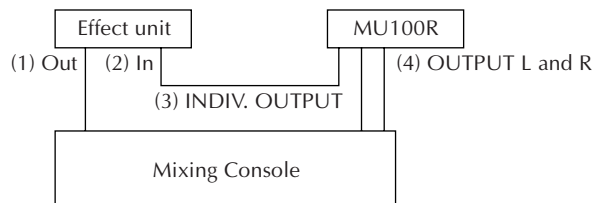
- Set up the MU100R so that two Parts are independently routed to the two INDIV. OUTPUT jacks.

Using the Individual Outputs

Operation

- 1 Make the necessary audio connections.





In the example illustration below, the INDIV. OUTPUT 1 jack is connected to the input of an effect unit. The output of the effect unit is then connected to a channel on a mixing console, along with the main OUTPUT jacks of the MU100R.



In a variation of this, INDIV. OUTPUT 1 could be connected directly to a separate input channel on the mixing console, then processed with an outboard effect using the send/return connections on the mixer.

Hint

If you don't have an external mixer yet want to use the individual output and an external effect to process a Part, you can do so and return the output from the effect device back into the MU100R via one of the A/D inputs. (For information on using the A/D inputs, see page 87.)

- 2 Select the desired Part.
From the Multi mode Single Part display, use the [PART >] buttons to select the desired Part for using with the individual output.
- 3 Set the Output Select parameter to the desired setting.
Here, we'll set the selected Part to output from the INDIV. OUTPUT 1 jack.
To do this:
 - 1) Press the [EDIT] button.
 - 2) Select "OTHERS" with the [SELECT ] button, and press the [ENTER] button.
 - 3) Select "OutPtSel" (Output Select) with the [SELECT ] button.
 - 4) Set the parameter to "ind1" with the [VALUE >] buttons or data dial.

The selected Part will now be output only through the INDIV. OUTPUT 1 jack. (Output through the main OUTPUT jacks and PHONES jack is cancelled.)




To select another Part for individual output, repeat steps #2 and #3 above. You can set additional Parts to be output through the same jack, or select "ind2" to output a Part or Parts through INDIV. OUTPUT 2.

For more information on the individual outputs, refer to the Output Select parameter (page 113) and the Output Select Lock parameter (page 158).

Routing Drum Sounds to the Individual Outputs

Individual drum sounds can also be routed to the individual outputs.

To do this:

- 1) Select a Drum Part.
- 2) Press the [EDIT] button.
- 3) Select "DRUM," and press the [ENTER] button.
- 4) Select the desired drum sound (either from the connected MIDI keyboard or with the [PART >] buttons).
- 5) Call up the Output Select parameter (with the [SELECT ] button) and make the desired setting (with the [VALUE >] buttons or data dial).

For more information on using Drum Parts with the individual outputs, refer to the Output Select parameter (page 118).

Mute/Solo

The MU100R has convenient Mute and Solo functions for selectively muting or soloing any of the 32 normal Parts and the A1 and A2 A/D Parts. This is especially useful when playing back several Parts from a connected computer or sequencer. Mute lets you silence one Part to hear how all of the other Parts sound without it. Solo lets you isolate a single Part, to hear how that Part sounds by itself.

In the Performance mode, Mute and Solo are especially effective tools that help you as you edit the Parts, since they allow you to better hear how the changes you make affect specific Voices as well as the overall sound of the Performance.

Using Mute/Solo

Operation

- 1 Select the desired Part.
Make sure the Single Part mode is active (see page 108), then use the [PART \ominus/\oplus] buttons to select the Part.



Selected Part number.

- 2 Press the [MUTE/SOLO] button.
While playing the keyboard (or during playback of a song from a sequencer), press the [MUTE] button. Each press cycles through the three functions: Mute, Solo and Normal operation.



The selected Part is muted, while all other Parts sound normally.



The selected Part is soloed, while all other Parts are muted.



All Parts sound normally.

A/D Inputs

The MU100R features a special A/D (Analog-to-Digital) input function that allows you to connect up to two different external signals (microphone, electric guitar, CD player, etc.), mix those signals with the MU100R's Voices. A/D input is perfect for singing along with your keyboard performance, since it allows you to blend the two signals without the need for an external mixer. Or you can use it to sing or play guitar over backing tracks played from a MIDI sequencer.

There are two A/D Parts (A1 and A2) and they can be manipulated in much the same way as the other parts — for example, they can have independent Volume, Pan, and effect send settings. What's more, you can control certain parameters automatically via a connected MIDI sequencer. (See page 17.)

The two A/D Parts include several specially programmed presets, complete with proper gain settings and suitable effects — using the built-in effects of the MU100R.

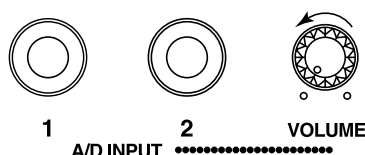
In this section, you'll learn how to:

- ▶ Set up the MU100R for using the A/D inputs.
- ▶ Call up the A/D input presets.

Using the A/D Inputs

Operation

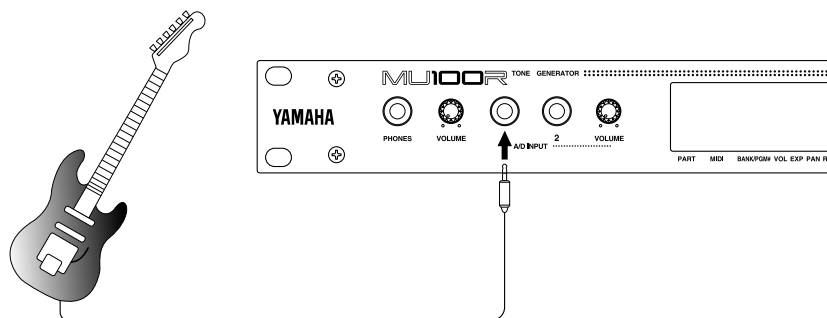
- 1** Turn down the A/D INPUT VOLUME control on the front panel.



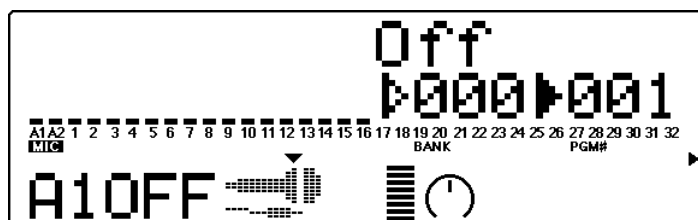
CAUTION!

Before connecting an external input, always turn the VOLUME control down.

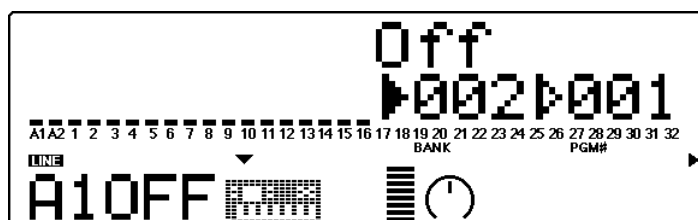
- 2** Connect the microphone or instrument to one of the A/D INPUT jacks.
For this example, connect to the A/D INPUT 1 jack. (Depending on the equipment being used, appropriate conversion adaptors may be necessary; the A/D INPUT jacks accept 1/4" phone plugs.)



- 3 Select the corresponding Part.
Use the [PART \ominus/\oplus] buttons. Since you connected to the A/D INPUT 1 jack above, select Part A1 in this step.

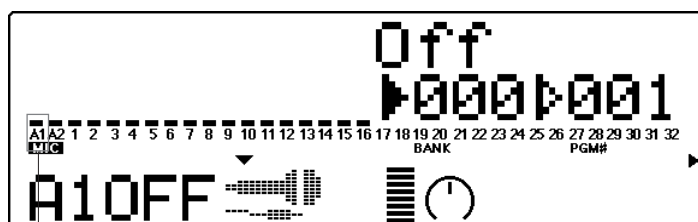


- 4 Select the appropriate bank of presets.
Do this in the normal way, using the [SELECT $\blacktriangle/\blacktriangleright$] buttons to highlight the bank number parameter, then using the [VALUE \ominus/\oplus] buttons to change the bank.



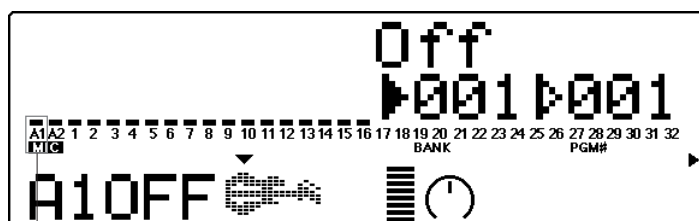
The selected bank determines the type of input and sets the appropriate gain level. Each bank/type is indicated by an icon in the LCD:

Bank 000



For input of a microphone (or other mic level instruments).

Bank 001



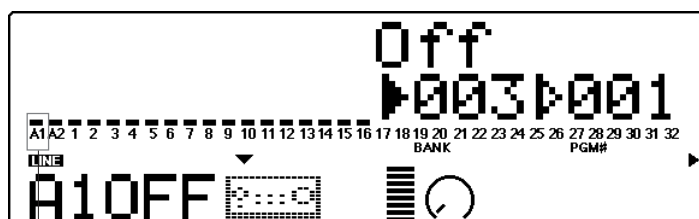
For input of an electric or electric/acoustic guitar (or other mic level instruments).

Bank 002



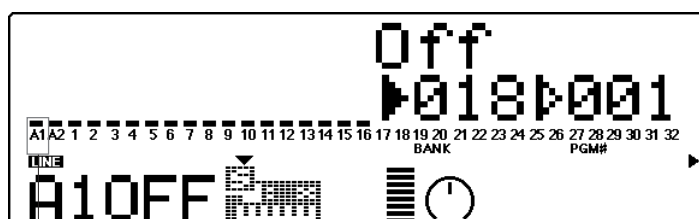
For input of a keyboard (or other line level instruments, such as tone generators, rhythm machines, etc.).

Bank 003



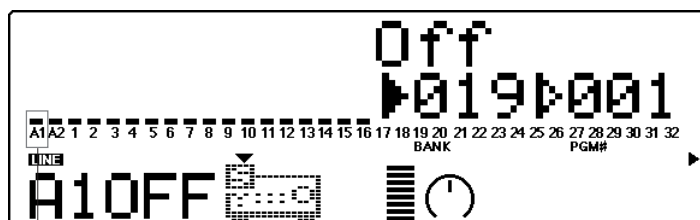
For input of audio equipment (such as CD players, cassette decks, etc.).

Bank 018



For input of a stereo keyboard (or other stereo signals from line level instruments, such as tone generators, rhythm machines, etc.).

Bank 019



For input of stereo audio equipment
(such as CD players, cassette decks, etc.).

CAUTION!

Do not use line level signals (such as from keyboards, etc.) with the mic level banks. The signal may be too high, resulting in damage to the MU100R.

5 Select the desired preset.

Do this in the normal way (as you selected Voices), using the [SELECT ◀/▶] buttons to highlight the program number parameter, then using the [VALUE −/+] buttons to select the preset.

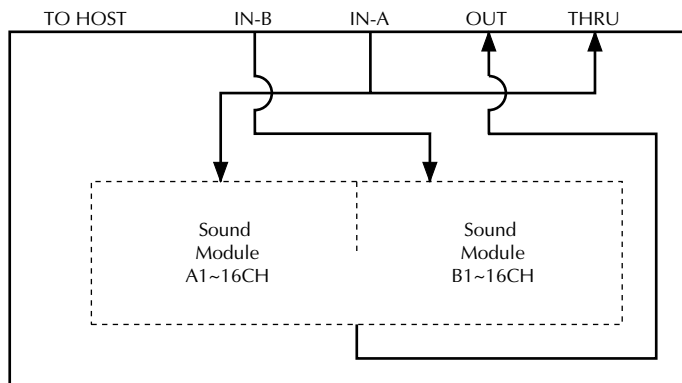
The available presets have been specially programmed to suit the type of input selected. For example, presets for Mic input include Karaoke and Vocal; Guitar input presets include Tube, Stack and Phaser. Explore some of these settings on your own with a microphone and different instruments. (For a list of all available A/D input presets, refer to the “Sound List & MIDI Data” booklet.)

6 Turn up the level.

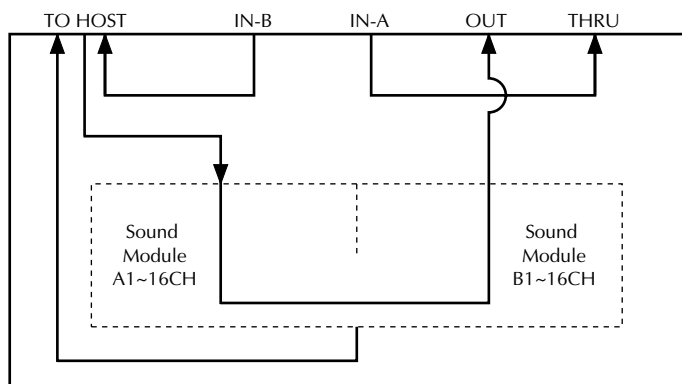
If the connected source has a volume control, first set it to an appropriate level, then slowly bring up the A/D INPUT VOLUME control on the MU100R while playing the instrument (or singing into the microphone), until the level is appropriate.

Data Flow Block Diagram

When HOST SELECT switch is set to MIDI (31,250 bps):



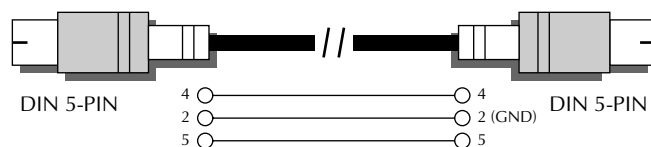
When HOST SELECT switch is set to PC-1/MAC (31,250 bps) or PC-2 (38,400 bps):



MIDI/Computer Connecting Cables

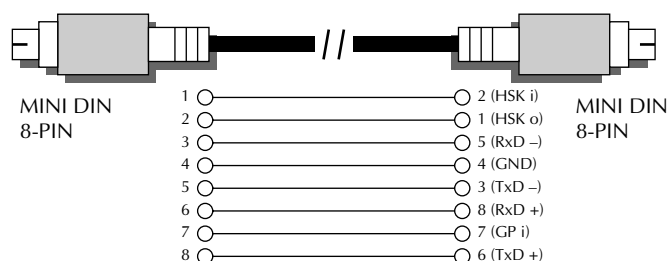
MIDI

Standard MIDI cable. Maximum length 15 meters.



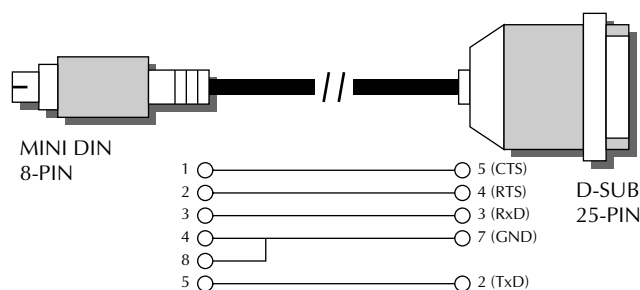
Mac

Apple Macintosh Peripheral cable (M0197). Maximum length 2 meters.



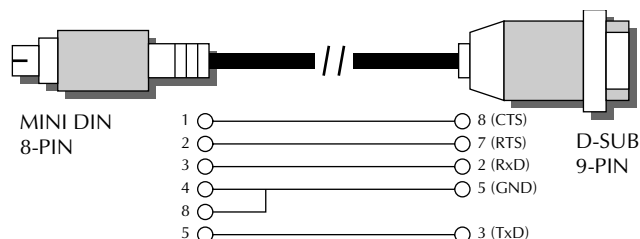
PC-1

8-pin MINI DIN to D-SUB 25-pin cable. If your PC-1 type computer has a 9-pin serial port, use the PC-2 type cable. Maximum length 1.8 meters.



PC-2

8-pin MINI DIN to D-SUB 9-pin cable. Maximum length 1.8 meters.



This concludes your basic tour of the important functions of the MU100R. To find out more about how to best use your MU100R, look through the **Reference** section that follows and try out some of the functions and operations that interest you.

REFERENCE

The Reference section of this manual covers in detail all of the functions of the MU100R. Refer to it when you need information about a specific function, feature or operation.

Multi Mode

In the Multi mode, the MU100R performs as a multi-timbral tone generator capable of playing up to 32 Parts simultaneously, over 32 MIDI channels. Normally, the MU100R should be set to Multi mode when using it with a sequencer and General MIDI song data. There are three Multi modes: XG, TG300B and C/M. (For information on selecting these, see pages 6 and 172.)

Part Controls	95
Single Part Control	96
All Part Control	98
Multi Edit Mode	100
Filter (FIL)	100
Envelope Generator (EG)	102
Equalizer (EQ)	105
Vibrato	106
Others	107
Drum Setup Controls	114
VL Voice Part Parameters (Plugin)	119

Part Controls

The Part controls in the Play mode give you tools for adjusting the basic sound and settings for each Part. The MU100R lets you adjust the various settings for each Part individually (Single Part control) or together (All Part control). Each of these types is explained in greater detail below.

NOTE

In the Multi mode, no settings can be permanently saved to the internal memory of the MU100R. However, you can use the Dump Out function to save Multi settings to a MIDI data storage device. (See page 18.)

Single Part Control

The Single Part controls include: MIDI Receive Channel, Bank Number, Program Number, Volume, Expression, Pan, Reverb Send, Chorus Send, Variation Send and Note Shift. For basic information on using the Single Part control, see page 33.

MIDI Receive Port/Channel

Settings: A1 — A16, B1 — B16, OFF



This determines the MIDI IN port (A or B) and the receive channel (1 — 16) for the selected Part.

Bank Number

Settings:

A1 (A/D Input part):

000 — 003, 018, 019

A2 (A/D Input part):

000 — 003

Normal part:

XG: 000, 001, 003, 006, 008, 012, 014, 016 — 022, 024 — 029, 032 — 043, 045, 048, 052 — 054, 064 — 088, 096 — 101, 126, 127

[icon-MU100] 000, 008, 016,

024, 048, 056, 064, 072, 080,

088, 096, 104, 120

[icon-SFX] SFX

[icon-VL] 000 — 003, 112 — 119

TG300B: 000, 001 — 011, 016 — 019, 024 — 026, 032, 033, 040, 126, 127

C/M: Fixed (only one bank)

Drum part:

XG: 126, 127

TG300B: 000

C/M: Fixed (only one bank)



This determines the bank number of the selected Part's Voice. (Refer to the **SOUND LIST & MIDI DATA** booklet.)

For more information on selecting banks, see page 28 and Display Bank Select parameter, page 160.

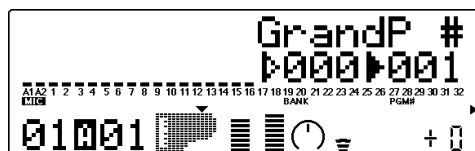
Program (Voice) Number

Settings:

A1 (A/D Input part): 001 — 013

A2 (A/D Input part): 001 — 005

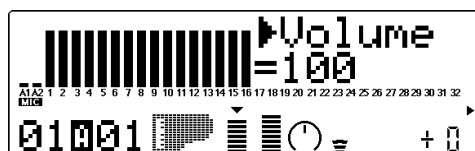
Normal part: 001 — 128



This determines the Voice for the selected Part. (Refer to the **SOUND LIST & MIDI DATA** booklet.)

Volume

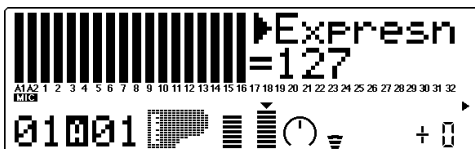
Range: 000 — 127



This determines the Volume setting for the selected Part's Voice.

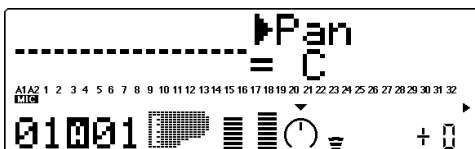
Expression (Expresn)

Range: 000 — 127



This determines the Expression setting for the selected Part's Voice.

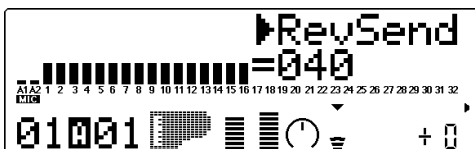
Pan

Settings: Rnd (Random),
L63 — C — R63

This determines the stereo position of the selected Part's Voice. A setting of "Rnd" (Random) randomly assigns the Voice to a pan position. This is useful when you want to have different Voices sound from different random parts of the stereo image. (The Random setting does not affect the A/D input Parts and VL Voice Parts.)

Reverb Send (RevSend)

Range: 000 — 127



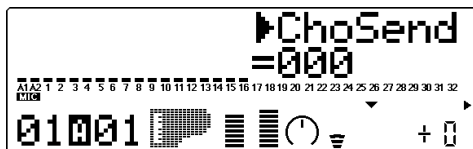
This determines the level of the selected Part's Voice that is sent to the Reverb effect. A value of 000 results in a completely "dry" Voice sound.

NOTE

Keep in mind that the Reverb effect must be properly enabled and set for this parameter to work as intended. (See page 142.)

Chorus Send (ChoSend)

Range: 000 — 127



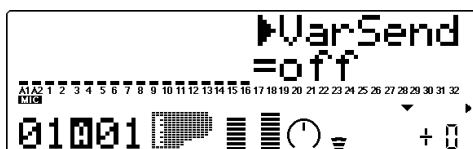
This determines the level of the selected Part's Voice that is sent to the Chorus effect. A value of 000 results in a completely "dry" Voice sound (no Chorus effect).

NOTE

Keep in mind that the Chorus effect must be properly enabled and set for this parameter to work as intended. (See page 143.)

Variation Send (VarSend)

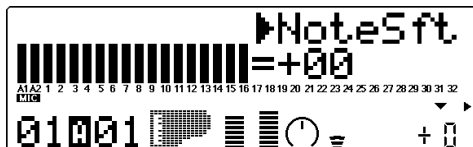
Settings: off, on (when **Variation Connection** is set to **INS**);
000 — 127 (when **Variation Connection** is set to **SYS**)



This determines whether the selected Part's Voice is sent to the Variation effect or not. A setting of "off" or "000" results in no Variation effect being applied to the Voice.

Note Shift (NoteSft)

Range: -24 — +24 semitones



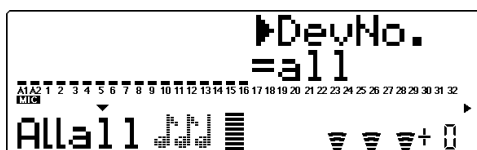
This determines the key transposition setting for the Part's Voice.

All Part Control

The All Part controls include: Device Number, Master Volume, Master Attenuator, Reverb Return, Chorus Return, Variation Return and Transpose. Keep in mind that these controls affect all Parts equally, and either add to or subtract from their individual values. For example, if Note Shift on one Part is set to -12 , and Transpose (in All Part) is set to $+12$, that Part's pitch value will actually be 0 or normal. For basic information on using the All Part controls, see page 35.

Device Number (DevNo.)

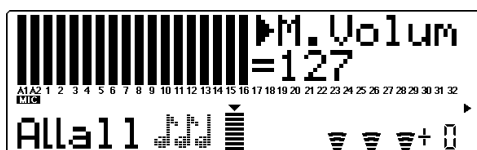
Settings: 1 — 16, all



This determines the Device Number for the MU100R, a kind of MIDI “identification” number to distinguish between multiple units. For example, if you are using more than one MU100R, set a different Device Number for each. This setting only applies to the data dump features. (See page 161.) If you have only one MU100R, set this to “all.”

Master Volume (M.Volum)

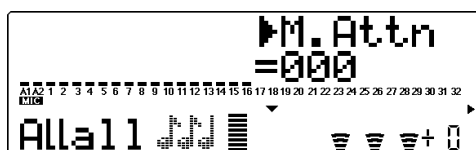
Range: 000 — 127



This determines the overall Volume of the Parts.

Master Attenuator (M.Attn)

Range: 000 (maximum volume) — 127 (minimum volume)



This determines the level of all Parts, but functions as an attenuator; the greater the value, the lower the volume. This is useful when you are playing several songs and want to keep their overall level consistent.

Reverb Return (RevRtn)

Range: 000 — 127



This determines the amount of Reverb return in the overall mix.

Chorus Return (ChoRtn)

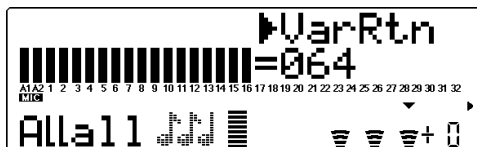
Range: 000 — 127



This determines the amount of Chorus return in the overall mix.

Variation Return (VarRtn)

Range: 000 — 127



This determines the amount of Variation return in the overall mix. Variation Return is only available when the **Variation Connection** parameter is set to **SYS**. (See page 145.)

Transpose (Trans)

Range: -24 — +24 semitones



This determines the overall Transpose setting of the Parts.

Multi Edit Mode

The Multi Edit mode features various parameters for controlling the Filter, the EG (Envelope Generator), the EQ, and Vibrato. It also features a variety of other miscellaneous controls grouped in the Others parameters. When a Drum Part is selected, Drum-related parameters are also available. When the VL Voices are assigned to the selected Part, the VL Edit parameters (“PLUGIN”) are also available (page 119).

For basic information on using the Multi Edit mode, see page 36.

NOTE

When a VL Voice is selected, the following Multi Edit parameters are not available:

HPF Cutoff — in Filter menu

Low Frequency and High Frequency — in EQ Menu (However, both Gain parameters are effective.)

Element Reserve, Velocity Limit Low and Velocity Limit High — in Others menu

Filter (FIL)

Path: [EDIT] button → “FILTER” (“FIL” when a VL Part is selected.)

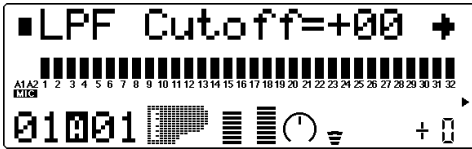
Filter _____

- LPF Cutoff Frequency
- LPF Resonance
- HPF Cutoff Frequency

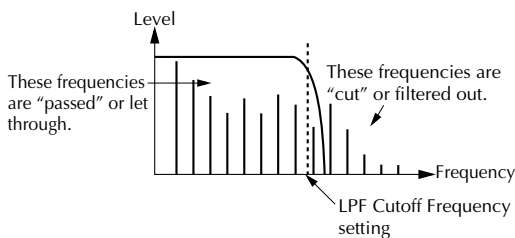
The MU100R features a digital filter that can be used to change the timbre of the Voices. The filter is affected (together with the level) by the EG (Envelope Generator), which allows you to change the timbre over time as well. (See **EG**, page 102.)

LPF Cutoff Frequency (LPF Cutoff)

Range: -64 — +63

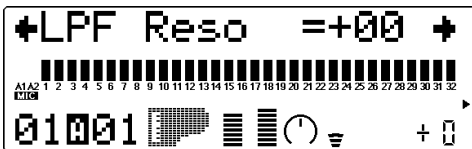


This determines the cutoff frequency of the low pass filter (LPF). The LPF filters out frequencies higher than the cutoff point and “passes” the lower frequencies. Lower cutoff values create a deeper, more rounded tone, while higher values create a brighter tone.

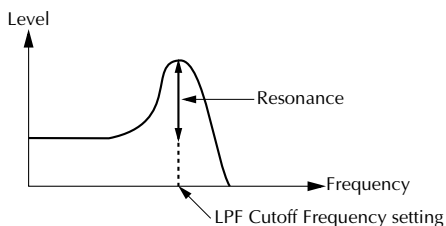


LPF Resonance (LPF Reso)

Range: -64 — +63

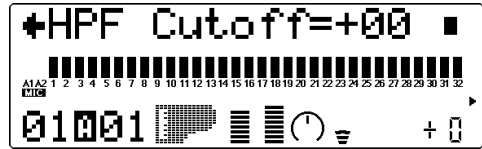


This determines the amount of filter resonance or emphasis of the LPF Cutoff Frequency above. Higher values make the filter effect more pronounced and stronger, creating a resonant peak around the cutoff frequency.

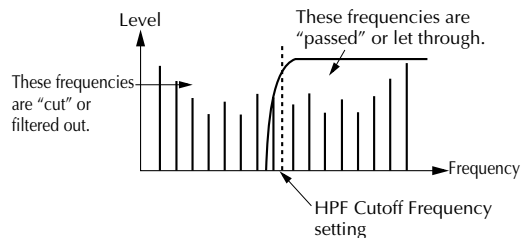


HPF Cutoff Frequency (HPF Cutoff)

Range: -64 — +63



This determines the cutoff frequency of the high pass filter (HPF). The HPF filters out frequencies lower than the cutoff point and “passes” the higher frequencies. Lower cutoff values preserve the fundamental and lower overtones of the sound, while higher values create a thinner, brighter tone.



Envelope Generator (EG)

Path: [EDIT] button → “EG”

EG (Envelope Generator) _____

Level/Filter EG Parameters 103

- EG Attack Time
- EG Decay Time
- EG Release Time

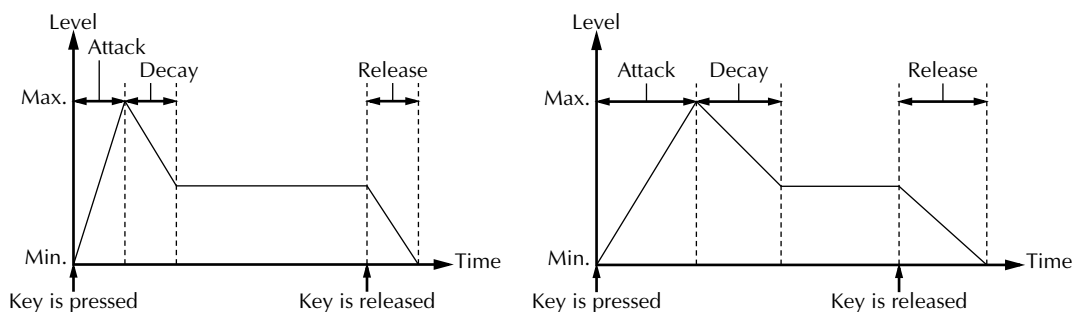
Pitch EG Parameters 103

- Pitch EG Initial Level
- Pitch EG Attack Time
- Pitch EG Release Level
- Pitch EG Release Time

The EG parameters allow you to shape the sound of a Part’s Voice — or, in other words, set how the level and timbre of the Voice changes over time. This section also includes independent Pitch Envelope Generator (PEG) parameters for controlling how the pitch of a Part’s Voice changes over time.

The relationship of the main EG parameters — Attack, Decay and Release — are shown in the illustration below. These parameters not only affect the sound level, but also the timbre (with the Filter parameters; see page 100).

- 1) Short Attack, Decay, Release times: 2) Long Attack, Decay, Release times:



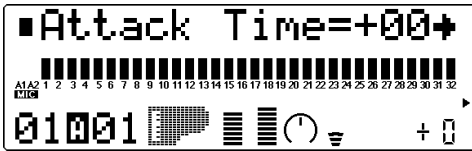
Even though the key is held for the same length of time in both examples, the sound of the second example slowly reaches full volume and decays over a long time. It also sustains longer after the key is released.

Keep in mind that the EG parameters affect each other, and are affected by how long a note is held. For example, if Decay is set to a low value and the note is held for a long time, you may not be able to hear changes made to the Release parameter.

Level/Filter EG Parameters

EG Attack Time

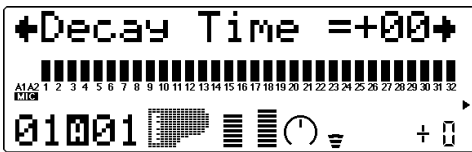
Range: -64 — +63



This determines the Attack Time of the EG, or how long it takes for the sound to reach full volume when a note is played. For the Filter, this determines how long it takes for the sound to be affected by the maximum Filter values.

EG Decay Time

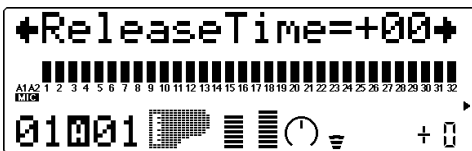
Range: -64 — +63



This determines the Decay Time of the EG, or how rapidly the sound dies out as a note is held. For the Filter, this determines how long it takes for the Filter effect to die out.

EG Release Time

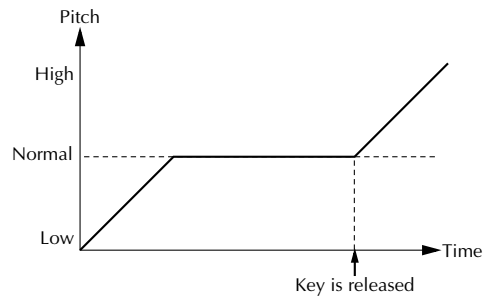
Range: -64 — +63



This determines the Release Time of the EG, or how long the sound sustains after a note is released. For the Filter, this determines how long the Filter effect continues after a note is released.

Pitch EG Parameters

The Pitch EG parameters determine how the pitch of a Part's Voice changes over time. This lets you produce subtle or pronounced pitch changes as a note is played. In the example Pitch EG settings below, a played note is gradually bent up to its normal pitch, and kept there as the note is held. When the note is released, the pitch rapidly climbs up.



NOTE

The Pitch EG parameters may have little or no effect, depending on the particular Voice used and the settings made to the main EG parameters.

Pitch EG Initial Level (PEGInitLvl)

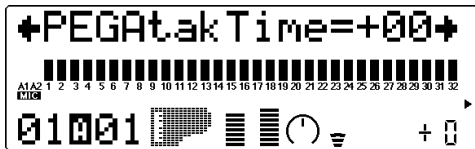
Range: -64 — +63



This determines the initial pitch of the Part's Voice, when the note is first played. A setting of 00 corresponds to normal pitch.

Pitch EG Attack Time (PEGAtakTime)

Range: -64 — +63



This determines the Attack Time of the Pitch EG, or how long it takes for the pitch to return to normal (from the pitch value set in Initial Level above).

Pitch EG Release Level (PEGReleLvl)

Range: -64 — +63



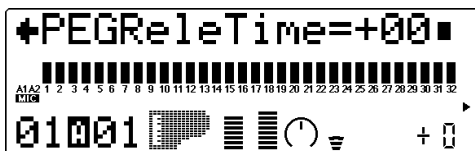
This determines the final pitch of the Part's Voice, or the pitch that is reached after the note is released. A setting of 00 corresponds to normal pitch.

NOTE

The Pitch EG Release Level and Time parameters may have no effect if the Voice itself does not sustain after the note is released. (Short percussive Voices may fall into this category.) Also make sure that the main EG Release Time is set to an appropriate value so that the sound sustains.

Pitch EG Release Time (PEGReleTime)

Range: -64 — +63



This determines the Release Time of the Pitch EG, or how long it takes for the pitch to change to the pitch value set in Release Level above.

Equalizer (EQ)

Path: [EDIT] button → "EQ"

EQ (Equalizer)

- EQ Low Frequency
- EQ Low Gain
- EQ High Frequency
- EQ High Gain

The EQ parameters let you adjust and set the tonal quality of a Part's Voice, such as boosting the bass sound, or making it brighter. This is a two-band equalizer with wide frequency variation for each band, and is independent of the overall EQ controls (see page 155).

EQ Low Frequency (Low Freq)

Range: 32 Hz — 2.0 kHz



This determines the frequency which is boosted or cut (in the Low Gain parameter below) for each Part.

EQ Low Gain

Range: -64 — +00 — +63



This determines the level of the selected frequency (in Low Freq above). Positive values boost the level of the selected frequency and negative values attenuate it.

EQ High Frequency (High Freq)

Range: 500 Hz — 16 kHz



This determines the frequency which is boosted or cut (in the High Gain parameter below) for each Part.

EQ High Gain

Range: -64 — +00 — +63



This determines the level of the selected frequency (in High Freq above). Positive values boost the level of the selected frequency and negative values attenuate it.

Vibrato

Path: [EDIT] button → “VIBRATO”
 (“VIB” When a VL Part is selected)

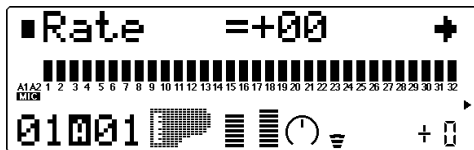
Vibrato

- Vibrato Rate
- Vibrato Depth
- Vibrato Delay

Vibrato produces a quavering, vibrating sound in the Part’s Voice, by regularly modulating the pitch. You can control the speed and depth of the Vibrato, as well as the time it takes before the Vibrato effect is applied.

Vibrato Rate

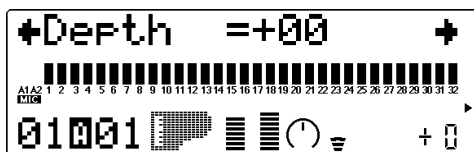
Range: -64 — +63



This determines the speed of the Vibrato effect. Higher values result in a faster Vibrato sound.

Vibrato Depth

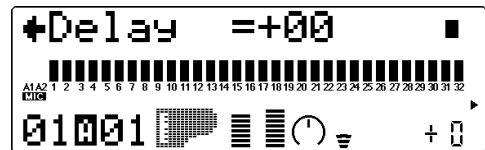
Range: -64 — +63



This determines the depth of the Vibrato effect. Higher values result in a stronger, more pronounced Vibrato sound.

Vibrato Delay

Range: -64 — +63



This determines the delay in the onset of the Vibrato effect. Delay is effective especially on stringed instrument Voices. For example, violin players often use delayed vibrato, especially while playing long notes. The Delay parameter is useful in recreating this effect, producing a more natural, lifelike sound. Higher values result in a longer Delay time.

Others

Path: [EDIT] button → “OTHERS”

Others

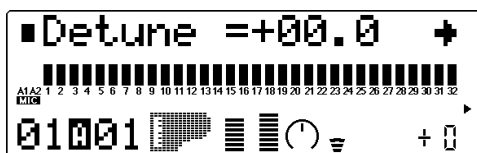
<u>Detune</u>	108
• Detune	
<u>Assignment Parameters</u>	108
• Part Mode	
• Mono/Poly Mode	
<u>Portamento Parameters</u>	109
• Portamento Switch	
• Portamento Time	
<u>Element</u>	109
• Element Reserve	
<u>Note Limit Parameters</u>	110
• Note Limit Low	
• Note Limit High	
<u>Dry Level</u>	110
• Dry Level (VarConnect=SYS)	
<u>Velocity Sensitivity Parameters</u>	110
• Velocity Sensitivity Depth	
• Velocity Sensitivity Offset	
<u>Velocity Limit Parameters</u>	111
• Velocity Limit Low	
• Velocity Limit High	
<u>Pitch Bend, Modulation Wheel,</u>	
<u>Assignable Controller</u>	111
• Pitch Bend Control	
• MW LFO Pitch Modulation Depth	
• AC1 Control Change Number	
• AC1 Filter Control	
• AC1 Amplitude Control	
<u>Output Assignment</u>	113
• Output select	

The Others section of parameters contains miscellaneous controls, including those related to tuning, Part Mode, velocity, portamento, note range, etc.

Detune

Detune

Range: -12.8 — +12.7



This determines the fine tuning of the Part's Voice.

HINT

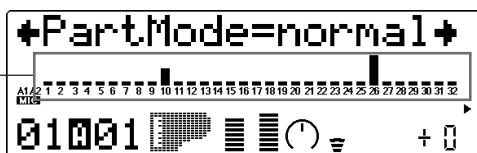
Detune could be used to slightly detune a Voice compared to the tuning of the rest of the Voices for a richer sound. It could also be used to detune two different Voices being played in unison. For example if two different Parts are set to the same MIDI channel (see page 96) and same Voice, a naturally thick chorusing effect can be obtained by slightly detuning each Voice in opposite directions here.

Assignment Parameters

Part Mode

Settings: normal, drum, drumS1 — S4
(When Sound Module mode is set to C/M, both Parts 10 and 26 are set to drumS1.)

Height of bars indicates selected Part Mode setting for each Part. (A single bar indicates "normal" setting.)



This determines the mode for the Part. A setting of **normal** allows selection of the normal instrument Voices. (See the **SOUND LIST & MIDI DATA** booklet.) The drum setting allows selection of the drum kits. (See the **SOUND LIST & MIDI DATA** booklet.) The **drumS1** — **S4** settings are locations for storing specially programmed drum setups. These setups can be edited by using the Drum Setup controls in the Multi Edit mode.

(See page 114.) The **drum** and **drumS1** — **S4** settings are not available in the Performance mode (all Parts are fixed to "normal").

The Part Mode settings differ depending on the Sound Module mode selected, as described below.

For **XG** (Extended General MIDI) mode: All settings described above are available. When **normal** is selected, any of the basic or the extended set of Voices can be used for the Part.

For **TG300B** mode:

The settings **normal** and **drumS1** — **S4** are available; **drum** cannot be selected. When **normal** is selected, either the basic or the extended set of Voices (for the TG300B mode) can be used for the Part.

For **C/M** mode:

The Part Mode settings are fixed in this mode and cannot be changed: Parts 10 and 26 are set to **drumS1**, and all other Parts are set to **normal**. The MIDI Receive Channel setting for Parts 1 and 17 is set to **off**. The 128 Voices of C/M Type 1 can be used for Parts 1 — 9 and 17 — 25; the 64 Voices of C/M Type 2 can be used for Parts 11 — 16 and 27 — 32.

For **PFM** (Performance) mode:

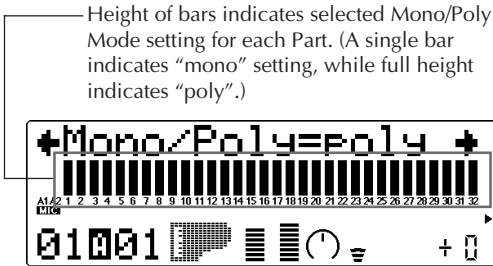
All four Parts are set to **normal**; none of the **drum** settings are available. Any of the basic or the extended set of Voices can be used for each Part.

NOTE

When two or more different Parts are set to the same editable drum setup (drumS1 — S4), any edits made to that drum setup automatically affect all those Parts. For example, when two Parts are set to drumS1, any changes made to drumS1 affect both Parts.

Mono/Poly Mode

Settings: mono, poly



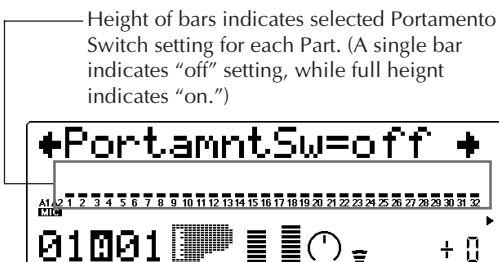
This determines whether the Part's Voice is played monophonically (only one note at a time) or polyphonically (up to 64 notes at a time). This parameter is not available when the Part Mode is set to Drum.

Portamento Parameters

Portamento is a function that creates a smooth pitch glide from one note to another.

Portamento Switch (PortametSw)

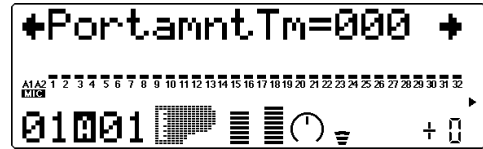
Settings: off, on



This determines whether Portamento is on or off for the Part. (This parameter is not available for Drum Parts.)

Portamento Time (PortametTm)

Range: 000 — 127



This determines the time of the Portamento effect, or how long it takes to glide the pitch from one note to the next. Higher values result in a longer pitch glide time. (This parameter is not available for Drum Parts.)

Element

Element Reserve (ElemReserv)

Range: 00 — 64



This determines the minimum number of sound elements that are reserved for the Part. This setting ensures that when the maximum simultaneous polyphony of 64 notes (or elements) is exceeded, the selected Part will still play up to the number of elements set here. For example, if the Element Reserve of a Part is set to 10, the sounds for that Part (up to 10 simultaneous notes) will not be cut off, even if the maximum polyphony is exceeded. The total number of Element Reserve values for all of the Parts cannot exceed 64.

This parameter is useful when playing back dense song data, and it ensures that the most important Parts in the song data will play properly without being cut off.

Note Limit Parameters

The Note Limit Low and High parameters allow you to set the range of notes for a Part's Voice. Notes outside the range will not be played.

HINT

Note Limit can be used to set up keyboard splits. Set two Parts to the same MIDI channel (see page 96), but give them Note Limit settings so that one Part is played from the left side of the keyboard and the other is played from the right.

Note Limit Low (NoteLimitL)

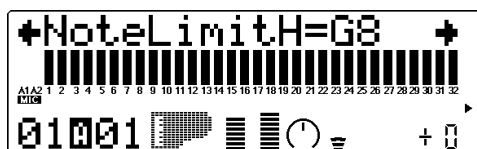
Range: C-2 — G8



This determines the lowest responding note for the Part. Notes below this value will not be played.

Note Limit High (NoteLimitH)

Range: C-2 — G8



This determines the highest responding note for the Part. Notes above this value will not be played.

Dry Level

Dry Level

Range: 000 — 127



This determines the level of the unprocessed sound of the Voice (sound with no effect processing). This parameter is only available when the **Variation Connection** parameter is set to **SYS**. (See page 145.)

Velocity Sensitivity Parameters

Velocity Sensitivity Depth (VelSensDpt)

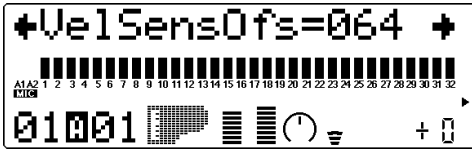
Range: 000 — 127



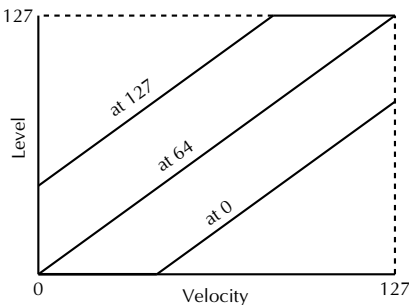
This determines the degree to which velocity affects the Part's Voice. Higher values make the Voice more sensitive to changes in velocity.

Velocity Sensitivity Offset (VelSensOfs)

Range: 000 — 127



This determines the volume range over which velocity affects. For lower values, the velocity affects a volume range from minimum to medium-loud. For higher values, velocity affects a range from medium-soft to maximum.



NOTE

Depending on the Voice used, if Velocity Sensitivity Offset is set to too low of a value, the Voice may not sound, no matter how strong the velocity.

Velocity Limit Parameters

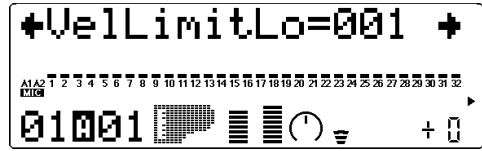
The Velocity Limit Low and High parameters allow you to set the effective velocity range for a Part's Voice. Velocity values outside the range will not be played. (Velocity is generally the strength at which notes are played from a MIDI keyboard.)

HINT

Velocity Limit can be used to set up velocity splits. A velocity split allows you to have one Part's Voice sound when you play the connected keyboard strongly, and a different Voice sound when you play softly. Set two Parts to the same MIDI channel (see page 96), but give them different Velocity Limit settings so that one or the other sounds depending on how strongly you play the keyboard.

Velocity Limit Low (VelLimitLo)

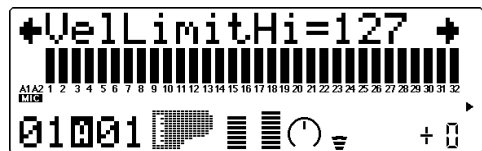
Range: 000 — 127



This determines the lowest velocity value at which the Part's Voice will play. The higher the value, the harder the keyboard must be played for the Voice to sound.

Velocity Limit High (VelLimitHi)

Range: 000 — 127



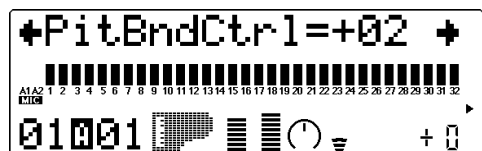
This determines the highest velocity value at which the Part's Voice will play. The lower the value, the less strength needed (in playing the keyboard) to get maximum volume.



Pitch Bend, Modulation Wheel, Assignable Controller

Pitch Bend Control (PitBndCtrl)

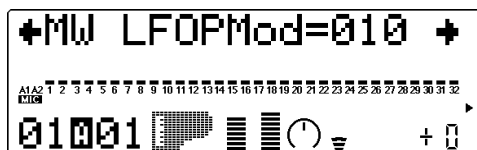
Range: -24 — +24 semitones
(+/- 2 octaves)



This determines the Pitch Bend range for the Part's Voice. (Pitch Bend is usually controlled by a pitch bend wheel on a MIDI keyboard.)

Modulation Wheel — LFO Pitch Modulation Depth (MW LFOPMod)

Range: 000 — 127



This determines how widely the pitch is modulated by the LFO (low frequency oscillator). This is generally controlled from a modulation wheel on a MIDI keyboard and produces a vibrato effect. The higher the value, the deeper the pitch modulation, and hence, the more pronounced the vibrato effect.

Assignable Controller 1 Control Change Number (AC1 CC No.)

Range: 00 — 95



This determines the which MIDI control change number is assigned to the Assignable Controller (AC1) for the selected Part. AC1 can be used to affect the Filter (page 112), volume (Amplitude; page 113), LFO (page 133) or the Variation effect (page 145). Make sure that parameters you don't want to be affected by AC1 are properly set to 00.

HINT

Though this parameter allows you to assign any control change number from 0 to 95, only a few of these are in common use. The controllers most likely to be encountered include:

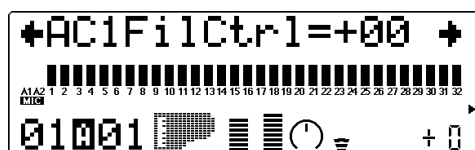
- 01 — Modulation wheel or lever
- 02 — Breath controller
- 04 — Foot controller
- 07 — Volume controller

Some or all of these may be available on your MIDI instrument, and can be used to control certain functions on the MU100R in real time. Some

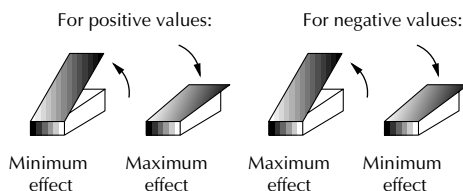
MIDI instruments allow you to change the control change number for a particular controller: for example, setting the modulation wheel (normally 01) to control Volume (07). Refer to the owner's manual of your particular instrument for more information. Also see page 62 in the VL Voice section for more details on controllers.

Assignable Controller 1 Filter Control (AC1 FilCtrl)

Range: -64 — +63



This determines the degree to which Assignable Controller 1 (AC1) affects the Cutoff Frequency of the Low Pass Filter for each Part. For maximum effect, this should be set to one of the extreme values, negative or positive. A setting of 00 results in no control over the Filter, even when AC1 is operated (or control change data is received). Negative settings affect the Filter negatively; in other words, when the controller is at the minimum position, control over the Filter is greatest (see illustration below). (The control number used for AC1 is set in the Assignable Controller 1 Control Change Number parameter above.)

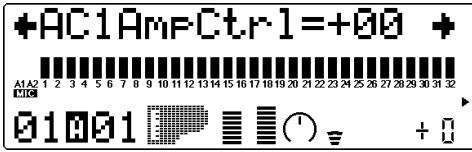


HINT

Positive and negative values can be most effectively used by setting two different Parts to opposite settings. In this way, moving the controller (for example, a foot controller) one way will affect one Part and moving it the opposite way will affect the other Part.

Assignable Controller 1 Amplitude Control (AC1 AmpCtrl)

Range: 64 — +63



This determines the degree to which Assignable Controller 1 (AC1) affects the volume (Amplitude) for each Part. For maximum effect, this should be set to one of the extreme values, negative or positive. A setting of 00 results in no volume control, even when AC1 is operated (or control change data is received). Negative settings affect the volume negatively; in other words, when the controller is at the minimum position, control over the volume is greatest. (The control number used for AC1 is set in the Assignable Controller 1 Control Change Number parameter above.)

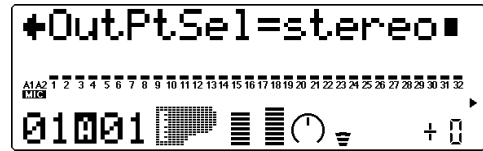
NOTE

For more information on using positive and negative values, see the illustration and hint in Assignable Controller 1 Filter Control (page 112).

Output Assignment

Output Select (OutPtSel)

Settings: stereo, ind1+2, ind1, ind2



This determines the output configuration for the selected Part. When set to “stereo,” the Part is output (with effects) through the main OUTPUT and PHONES jacks. When set to one of the “ind” (individual) settings, it is output through the INDIV. OUTPUT jacks. In this case, only Insertion effects can be applied; System effects cannot be applied to the INDIV. OUTPUT jacks. When set to “ind1+2,” the Part is output in stereo (1: left, 2: right). Settings of “ind1” and “ind2” output the Part in mono to the corresponding jack. (Parts output through the INDIV. OUTPUT jacks cannot be heard through the PHONES jack.)

NOTE

- The Output Select Lock parameter (page 158) must be set to “off” in order to change this setting via MIDI.
- When the Part Mode parameter (page 108) is set to “drum” or “drum S1 — S4,” this setting is inactive.

Drum Setup Controls

The Drum Setup controls allow you to make a wide variety of settings for the drum sounds in a Drum Part. These settings include Pitch controls, Level, Pan, effect send, filter controls and EG (Envelope Generator), among others. Moreover, these parameters can be set to completely independent values for each of the drum sounds in a Part.

The Drum Setup controls can only be called up by first selecting a Part to which a Drum Part is assigned. (For basic information on using the Drum setup controls, see page 39.)

Parh: [EDIT] button → "DRUM"

Drum Setup Controls	
<u>Pitch Parameters</u>	115
• Pitch Coarse	
• Pitch Fine	
• Velocity Pitch Sensitivity (VelPchSens)	
<u>Level</u>	115
• Level	
<u>Pan</u>	115
• Pan	
<u>Effect Send Parameters</u>	115
• Reverb Send (Rev Send)	
• Chorus Send (Cho Send)	
• Variation Send (Var Send)	
<u>Filter Parameters</u>	116
• LPF Cutoff Frequency (LPF Cutoff)	
• LPF Resonance (LPF Reso)	
• Velocity LPF Cutoff Sensitivity (VelLPFSens)	
• HPF Cutoff Frequency (HPF Cutoff)	
<u>EQ Parameters</u>	117
• EQ Low Frequency (Low Freq)	
• EQ Low Gain	
• EQ High Frequency (High Freq)	
• EQ High Gain	
<u>EG Parameters</u>	117
• EG Attack	
• EG Decay 1	
• EG Decay 2	

<u>Assignment</u>	117
• Alternate Group	
<u>Note On/Off</u>	118
• Receive Note On (RcvNoteOn)	
• Receive Note Off	
<u>Output Assignment</u>	118
• Output Select (OutptSel)	

The Drum Setup parameters are only available when the Part Mode has been set to drumS1 — S4. (See page 108.)

Pitch Parameters

Pitch Coarse

Range: –64 — +63

This determines the coarse pitch setting of the selected drum sound.

Pitch Fine

Range: –64 — +63

This determines the fine pitch setting of the selected drum sound.

Velocity Pitch Sensitivity (VelPchSens)

Range: –16 — +16

This determines the degree to which pitch changes of the selected drum sound respond to velocity. In other words, you can control how much the pitch of the sound changes by how hard or soft you play the keys of a connected keyboard. Positive values raise the pitch and negative values lower the pitch. A value of 00 results in no pitch change, whatever velocity is received.

Level

Level

Range: 000 — 127

This determines the volume of the selected drum sound.

Pan

Pan

Settings: Rnd (Random), L63 — C — R63

This determines the stereo position of the selected drum sound. A setting of “Rnd” (Random) randomly assigns the drum to a pan position. This is useful when you want to have different drums sound from different random parts of the stereo image.

Effect Send Parameters

Reverb Send (Rev Send)

Range: 000 — 127

This determines the level of the selected drum sound that is sent to the Reverb effect. A value of 000 results in a completely “dry” drum sound, no matter how much Reverb is applied to the Drum Part.

NOTE

Keep in mind that the Reverb effect must be properly enabled and set for this parameter to work as intended. (See page 142.) Also, the parameters Reverb Send in Single Part control (page 97) and Reverb Return in All Part control (page 98) must be set to appropriate values.

Chorus Send (Cho Send)

Range: 000 — 127

This determines the level of the selected drum sound that is sent to the Chorus effect. A value of 000 results in a completely “dry” drum sound, no matter how much Chorus is applied to the Drum Part.

NOTE

Keep in mind that the Chorus effect must be properly enabled and set for this parameter to work as intended. (See page 143.) Also, the parameters Chorus Send in Single Part control (page 97) and Chorus Return in All Part control (page 98) must be set to appropriate values.

Variation Send (Var Send)

Settings: off, on (when Variation Connection is set to INS);
000 — 127 (when Variation Connection is set to SYS)

This determines the level of the selected drum sound that is sent to the Variation effect. A setting of off results in a completely “dry” drum sound, no matter how much Variation is applied to the Drum Part.

NOTE

Keep in mind that the Variation effect must be properly enabled and set for this parameter to work as intended. (See page 144.) Also, the parameters Variation Send in Single Part control (page 97) and Variation Return in All Part control (page 99) must be set to appropriate values.

Filter Parameters

LPF Cutoff Frequency (LPF Cutoff)

Range: -64 — +63 (XG mode), 000 — 127 (TG300B or C/M mode)

This determines the cutoff frequency of the low pass filter (LPF) for the selected drum sound. The LPF filters out frequencies higher than the cutoff point and “passes” the lower frequencies. Lower cutoff values create a deeper, more rounded tone, while higher values create a brighter tone. (For more information, see LPF Cutoff Frequency on page 101.)

LPF Resonance (LPF Reso)

Range: -64 — +63 (XG mode), 000 — 127 (TG300B or C/M mode)

This determines the amount of filter resonance or emphasis of the LPF Cutoff Frequency above for the selected drum sound. Higher values make the filter effect more pronounced and stronger, creating a resonant peak around the cutoff frequency. (For more information, see LPF Resonance on page 101.)

Velocity LPF Cutoff Sensitivity (VelLPFSens)

Range: -16 — +16

This determines the degree to which the LPF Cutoff Frequency for the selected drum sound changes in response to velocity. In other words, you can shift the LPF Cutoff Frequency of the filter up or down (and thus change the timbre of the sound) depending on how hard or soft you play the keys of a connected keyboard. Positive values raise the LPF Cutoff Frequency and negative values lower it. A value of 00 results in no frequency change, whatever velocity is received.

HPF Cutoff Frequency (HPF Cutoff)

Range: -64 — +63

This determines the cutoff frequency of the high pass filter (HPF) for the selected drum sound. The HPF filters out frequencies lower than the cutoff point and “passes” the higher frequencies. Lower cutoff values preserve the fundamental and lower overtones of the sound, while higher values create a thinner, brighter tone. (For more information, see HPF Cutoff Frequency on page 101.)

EQ Parameters

EQ Low Frequency (Low Freq)

Range: 32 Hz — 2.0 kHz

This determines the frequency which is boosted or cut (in the Low Gain parameter below) for the selected drum sound.

EQ Low Gain

Range: -64 — +63

This determines the level of the selected frequency (in Low Freq above). Positive values boost the level of the selected frequency and negative values attenuate it for the selected drum sound.

EQ High Frequency (High Freq)

Range: 500 Hz — 16 kHz

This determines the frequency which is boosted or cut (in the High Gain parameter below) for the selected drum sound.

EQ High Gain

Range: -64 — +63

This determines the level of the selected frequency (in High Freq above) for the selected drum sound. Positive values boost the level of the selected frequency and negative values attenuate it.

EG Parameters

EG Attack

Range: -64 — +63 (XG mode),
000 — 127 (TG300B or
C/M mode)

This determines the Attack Time of the EG (Envelope Generator), or how long it takes for the sound of the selected drum sound to reach full volume when a note is played. (See page 102 for more information about the EG function; also see illustration below.)

EG Decay 1

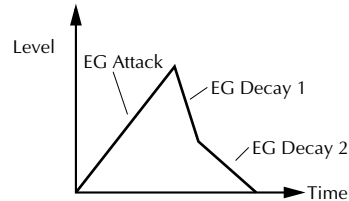
Range: -64 — +63 (XG mode), 000 —
127 (TG300B or C/M mode)

This determines the Decay 1 time of the EG, or how rapidly the sound dies down to the Decay 2 level. (See illustration below.) Higher values result in a longer Decay time.

EG Decay 2

Range: -64 — +63 (XG mode), 000 —
127 (TG300B or C/M mode)

This determines the Decay 2 time of the EG, or how rapidly the sound dies out completely. (See illustration below.) Higher values result in a longer Decay time.



Assignment

Alternate Group

Settings: off, 001 — 127

This determines the group assignment of the selected drum sound. Drums assigned to the same group cannot be sounded simultaneously. In other words, if one drum in a group is sounding while a second in the same group is played, the first drum sound will be cut off and the second will sound.

HINT

The main use for this parameter is in creating realistic hi-hat sounds. By assigning an open hi-hat and a closed hi-hat to the same group, you can "choke" or stop the open hi-hat sound by simply playing the closed hi-hat — just like pressing the pedal on an actual hi-hat set.

Note On/Off Parameters

Receive Note On (RcvNoteOn)

Settings: on, off

This determines how the selected drum sound responds to MIDI Note On messages. Normally, this should be set to on so that the corresponding drum sound plays when a MIDI Note On message is received. Set this to **off** when you want to keep the selected drum sound from playing.

Receive Note Off

Settings: on, off

This determines how the selected drum sound responds to MIDI Note Off messages. When this is set to on, the selected sound will stop in response to the corresponding MIDI Note Off message. An on setting is good for some sustained sounds (like a whistle), whose duration you want to control or for key-controlled cymbal “chokes.” For most drum sounds, however, this should be set to off so that the drum sound plays back in its entirety (is not cut off).

Output Assignment

Output Select (OutPtSel)

Settings: stereo, ind1+2, ind1, ind2

This determines the output configuration for the selected drum sound. When set to “stereo,” the drum sound is output (with effects) through the main OUTPUT and PHONES jacks. When set to one of the “ind” (individual) settings, it is output (without effects) through the INDIV. OUTPUT jacks. When set to “ind1+2,” the drum sound is output in stereo (1: left, 2: right). Settings of “ind1” and “ind2” output the drum sound in mono to the corresponding jack. (Drum sounds output through the INDIV. OUTPUT jacks cannot be heard through the PHONES jack.)

NOTE

The Output Select Lock parameter (page 158) must be set to “off” in order to change this setting.

VL Voice Part Parameters (Plugin)

The VL Voice Part parameters give you comprehensive tools for changing the character and expressive control of the VL Voices. As with the other MU100R Voices, the edits that you make to these parameters affect the Part and not the actual Voice itself. In other words, any parameter changes made are applied to any other VL Voices you select. Make sure that the Part to be edited is appropriately enabled for VL Voices. For basic instructions on editing VL Voices, see page 62.

Path: [EDIT] → "PLUGIN"

Plugin

<u>Filter</u>	120
• Filter Envelope Generator Depth	
<u>Pressure</u>	120
• Pressure Control Change Number	
• Pressure Control Depth	
<u>Embouchure</u>	120
• Embouchure Control Change Number	
• Embouchure Control Depth	
<u>Tonguing</u>	121
• Tonguing Control Change Number	
• Tonguing Control Depth	
<u>Scream</u>	121
• Scream Control Change Number	
• Scream Control Depth	
<u>Breath Noise</u>	122
• Breath Noise Control Change Number	
• Breath Noise Control Depth	
<u>Growl</u>	122
• Growl Control Change Number	
• Growl Control Depth	
<u>Throat Formant</u>	123
• Throat Formant Control Change Number	
• Throat Formant Control Depth	
<u>Harmonic Enhancer</u>	123
• Harmonic Enhancer Control Change Number	
• Harmonic Enhancer Control Depth	
<u>Damping</u>	124
• Damping Control Change Number	
• Damping Control Depth	
<u>Absorption</u>	124
• Absorption Control Change Number	
• Absorption Control Depth	

Filter

Filter Envelope Generator Depth (FileG Dept)

Settings: -64 — +63

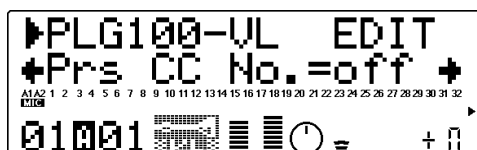


Sets the amount of variation produced by the controller assigned to dynamic filter. The higher the value the greater the variation. Positive values cause an increase in filter cutoff frequency in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in filter cutoff frequency in response to higher controller values.

Pressure

Pressure Control Change Number (Prs CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



“Pressure” corresponds to the amount of breath pressure applied to a reed or mouthpiece, or the speed of the bow applied to a string. Pressure variations affect both volume and timbre. The “Prs CC No.” parameter specifies the controller to be used for pressure control. When set to “off” maximum pressure is applied at all times.

Details

- Note that pressure affects not only volume, but timbre and pitch as well. Accurate keyboard/controller pitch is produced only at maximum pressure.
- The “PrsCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for pressure control to have any effect.

Pressure Control Depth (PrsCtrlDpt)

Settings: -64 — +63



Sets the amount of variation produced by the controller assigned to pressure. The higher the value the greater the variation. Positive values cause an increase in pressure in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in pressure in response to higher controller values.

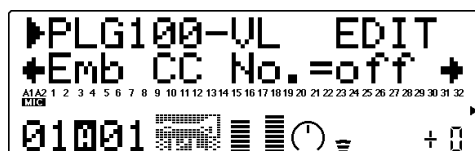
Details

- Set this parameter to “+00” if you do not intend to control pressure via a controller.

Embouchure

Embouchure Control Change Number (Emb CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



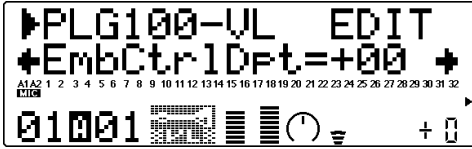
“Embouchure” corresponds to the tightness of the lips against the reed or against each other. In a string instrument Voice, embouchure corresponds to how strongly the bow is pressed against the string. This affects both pitch and timbre. The “Emb CC No.” parameter specifies the controller to be used for embouchure control. When set to “off,” medium embouchure is applied at all times.

Details

- Note that with many Voices, accurate keyboard/controller pitch is produced only at medium embouchure.
- The “EmbCtrlDpt” parameter (below) must be set to appropriate values (higher than “+01” or lower than “-01”) for embouchure control to have any effect.

Embouchure Control Depth (EmbCtrlDpt)

Settings: -64 — +63

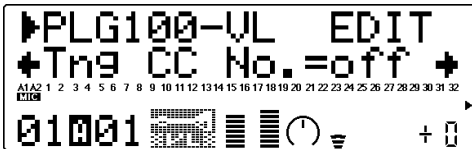


Sets the amount of variation produced by the controller assigned to embouchure. The higher the value the greater the variation. Positive values cause an increase in embouchure in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in embouchure in response to higher controller values.

Tonguing

Tonguing Control Change Number (Tng CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



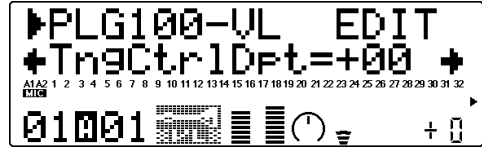
“Tonguing” simulates the half-tonguing technique used by saxophone players by changing the “slit” of the reed. The slit is the space between the tip of the reed and the mouthpiece. The “Tng CC No.” parameter specifies the controller to be used for tonguing control. When set to “off” no tonguing is applied.

Details

- Note that accurate keyboard pitch is produced only when maximum tonguing is applied or the tonguing controller is turned off.
- The “TngCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for tonguing control to have any effect.

Tonguing Control Depth (TngCtrlDpt)

Settings: -64 — +63

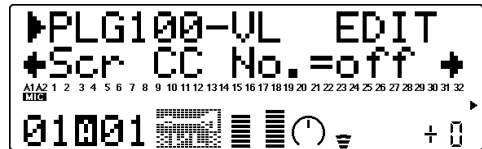


Sets the amount of variation produced by the controller assigned to tonguing. The higher the value, the greater the variation. Positive values cause a decrease in tonguing in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause an increase in tonguing in response to higher controller values.

Scream

Scream Control Change Number (Scr CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



“Scream” drives the entire system into chaotic oscillation, creating effects that can only be achieved with physical modeling technology. The “Scr CC No.” parameter specifies the controller to be used for scream control. When set to “off”, no scream variation can be produced via a controller, but a continuous scream value is determined by the “ScrCtrlDpt” parameter below. (Negative values increase the scream level.)

Details

- The “ScrCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for scream control to have any effect.

Scream Control Depth (ScrCtrlDpt)

Settings: -64 — +63

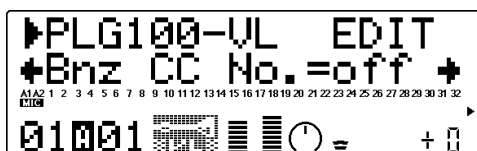


Sets the amount of variation produced by the controller assigned to scream. The higher the value the greater the variation. Positive values cause an increase in scream effect in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in scream effect in response to higher controller values.

Breath Noise

Breath Noise Control Change Number (Bnz CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



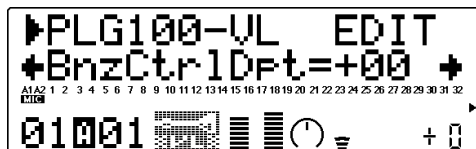
“Breath Noise” can be used to add the required amount of breath noise to a Voice. The “Bnz CC No.” parameter specifies the controller to be used for breath noise control. When set to “off”, no breath noise variation can be produced via a controller, but a continuous breath noise value is determined by the “BnzCtrlDpt” parameter, below (negative values increase the breath noise level).

Details

- The “BnzCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for breath noise control to have any effect.

Breath Noise Control Depth (BnzCtrlDpt)

Settings: -64 — +63

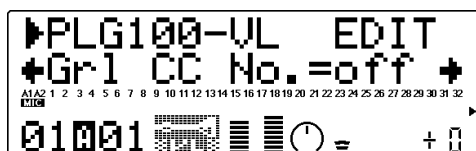


Sets the amount of variation produced by the controller assigned to breath noise. The higher the value the greater the variation. Positive values cause an increase in breath noise in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in breath noise in response to higher controller values.

Growl

Growl Control Change Number (Grl CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



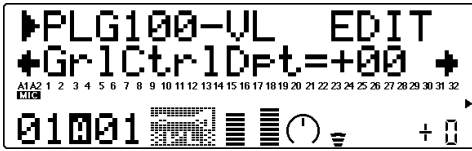
“Growl” produces a periodic pressure modulation which produces the “growl” effect often heard in wind instruments. The “Grl CC No.” parameter specifies the controller to be used for growl control. When set to “off”, no growl variation can be produced via a controller, but a continuous growl value is determined by the “GrlCtrlDpt” parameter, below (negative values increase the growl level).

Details

- The “GrlCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for growl control to have any effect.

Growl Control Depth (GrICtrlDpt)

Settings: -64 — +63

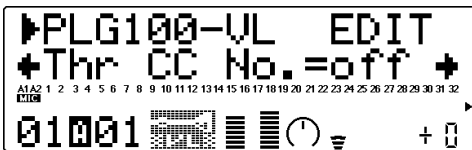


Sets the amount of variation produced by the controller assigned to growl. The higher the value, the greater the variation. Positive values cause an increase in growl effect in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in growl effect in response to higher controller values.

Throat Formant

Throat Formant Control Change Number (Thr CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



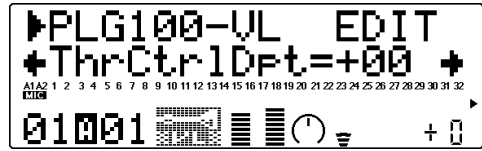
“Throat Formant” controls the characteristics of the simulated player’s lungs, trachea, and oral cavity and Can add a realistic “roughness” to the sound. The “Thr CC No.” parameter specifies the controller to be used for throat formant control. When set to “off”, no throat formant variation can be produced via a controller, but a continuous throat formant value is determined by the “ThrCtrlDpt” parameter, below (negative values increase the throat formant level).

Details

- The “ThrCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for throat formant control to have any effect.
- Throat Formant only applies to some reed-type Voices.

Throat Formant Control Depth (ThrCtrlDpt)

Settings: -64 — +63

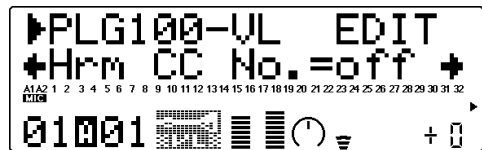


Sets the amount of variation produced by the controller assigned to throat formant. The higher the value, the greater the variation. Positive values cause an increase in throat formant effect in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in throat formant effect in response to higher controller values.

Harmonic Enhancer

Harmonic Enhancer Control Change Number (Hrm CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



The Harmonic Enhancer can vary the harmonic structure of the sound over a wide range. The “Hrm CC No.” parameter specifies the controller to be used for harmonic enhancer depth (wet/dry balance) control. When set to “off,” no harmonic enhancer depth variation can be applied via a controller.

Details

- The “HrmCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for harmonic enhancer control to have any effect.
- Since most VL Voices have sufficient natural harmonic content, the Harmonic Enhancer is actually only used on a few Voices. Therefore changing the controller destination with many Voices will produce either no change in the sound or a simple change in amplitude.

Harmonic Enhancer Control Depth (HrmCtrlDpt)

Settings: -64 — +63

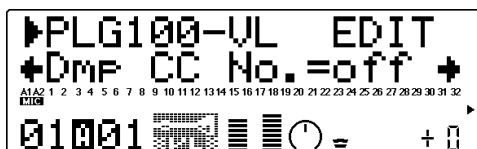


Sets the amount of variation produced by the controller assigned to the harmonic enhancer. The higher the value, the greater the variation. Positive values cause an increase in harmonic enhancer depth in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause a decrease in harmonic enhancer depth in response to higher controller values.

Damping

Damping Control Change Number (Dmp CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



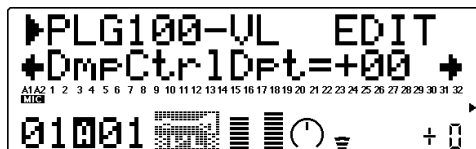
“Damping” simulates the effect of damping due to losses within the body of a wind instrument or in a string due to air friction. This affects both pitch and timbre. The “Dmp CC No.” parameter specifies the controller to be used for damping control. When set to “off,” no damping variation can be applied via a controller.

Details

- Note that accurate keyboard pitch is produced only when damping is maximum.
- The “DmpCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for damping control to have any effect.

Damping Control Depth (DmpCtrlDpt)

Settings: -64 — +63

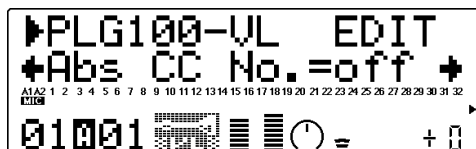


Sets the amount of variation produced by the controller assigned to damping. The higher the value, the greater the variation. Positive values cause a decrease in damping in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause an increase in damping in response to higher controller values.

Absorption

Absorption Control Change Number (Abs CC No.)

Settings: off, 01 — 31, off, 33 — 95, AT, VEL, PB



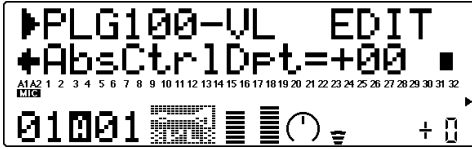
“Absorption” simulates the effect of high-frequency loss at the end of the air column or string. The “Abs CC No.” parameter specifies the controller to be used for absorption control. When set to “off,” no absorption variation can be applied via a controller.

Details

- Note that accurate keyboard pitch is produced only at when absorption is maximum.
- The “AbsCtrlDpt” parameter (below) must be set to an appropriate value (higher than “+01” or lower than “-01”) for absorption control to have any effect.

Absorption Control Depth (AbsCtrlDpt)

Settings: -64 — +63



Sets the amount of variation produced by the controller assigned to absorption. The higher the value, the greater the variation. Positive values cause a decrease in absorption in response to higher controller values (e.g., increased breath pressure or higher modulation wheel position), while negative values cause an increase in absorption in response to higher controller values.

Controllers

Here's a list of some of the physical controllers you might want to use with the VL tone generator section:

Breath Controller

(MIDI control change no. 02)

A natural candidate for controlling pressure, tonguing, throat formant, growl, and other parameters.

Pitch Bend Wheel

The pitch bend wheel on your keyboard or other MIDI device can be assigned to a range of parameters, but it's "standard" function is pitch control. A controller parameter such as Embouchure can also be assigned to the pitch bend wheel for more realistic pitch variations.

Modulation Wheel

(MIDI control change no. 01)

Since the modulation wheel on your keyboard or other MIDI device can be assigned to any controller parameter, it can be an important tool for musical expression. Use it in conjunction with a breath controller or a foot controller for broad expressive variation.

Foot Controller

(MIDI control change no. 04)

Like the modulation wheel, a foot controller connected to your keyboard or other MIDI device can be assigned to any VL controller parameter.

Aftertouch

Keyboard aftertouch allows you to control any controller parameter by the pressure you apply to a key after it is initially pressed. This is perhaps the most "intimate" type of keyboard expression control.

Velocity

Although normally assigned to pressure (particularly in plucked string Voices), keyboard velocity can also be assigned to any other controller parameter.

Others

The MIDI protocol provides 119 control change numbers, some of which are pre-assigned to specific controllers — as noted above, “01” is “Modulation Wheel”, for example. 95 of these are available for assignments to the VL controller parameters, so any available MIDI control devices can be used to full advantage. A complete list of the available MIDI control change numbers is given below.

MIDI Control Change Number Assignments

Control No.	Controller
off(00)	off (used by Bank Select MSB)
01	Modulation Wheel
02	Breath Controller
03	Unassigned
04	Foot Controller
05	Portamento Time
06	Data Entry MSB
07	Volume Control
08~09	Unassigned
10	Panpot
11	Expression
12~31	Unassigned
off(32)	off (used by Bank Select LSB)
33~37	Unassigned
38	Data Entry LSB
39~63	Unassigned
64	Hold1
65	Portamento Switch
66	Unassigned
67	Soft Pedal
68~70	Unassigned
71	Harmonic Content
72	Release Time
73	Attack Time
74	Brightness
75~90	Unassigned
91	Effect Send Level (Reverb Effect)
92	Unassigned
93	Effect Send Level 3 (Chorus Effect)
94	Effect Send Level 4 (Variation Effect)
95	Unassigned
AT	After Touch
VEL	Velocity
PB	Pitch Bend

Performance Mode

In the Performance mode, the MU100R performs as a four-Part tone generator, with all Parts controlled over a single MIDI channel. The Performance mode is so named because it's ideally suited to live performance situations. It allows you to play four different Voices at the same time from your MIDI keyboard — either in a layer, or in sophisticated keyboard and velocity splits. It also gives you comprehensive control over each of the four Parts for maximum performance flexibility. A total of 200 Performances are available: 100 Preset and 100 Internal. For basic information on using the Performance Mode, see page 23.

NOTE

Drum Parts are not available in the Performance mode.

Performance Part Control	128
All Part	128
Single Part	129
Performance Edit Mode	131
Common	131
Part	134
Copy and Store Operations	137
Copy	137
Store	138
Recall Function	140

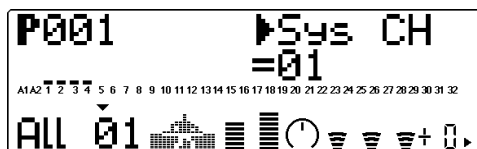
Performance Part Control

All Part

For basic information on using the All Part controls in the Performance mode, see page 44.

System MIDI Channel (Sys CH)

Settings: 01 — 16



This determines the MIDI receive channel for all Parts of the Performance.

Performance Bank

Settings: Pre (Preset), Int (Internal)



This determines the bank of Performance programs: Preset or Internal. Preset Performances are those that have been created and loaded at the factory; the Internal bank is reserved for user-created Performances.

NOTE

When changing Performance banks, there may be a slight delay before the sound changes.

Performance Number

Range: 001 — 100



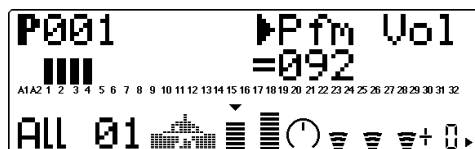
This determines the Performance number.

NOTE

When changing Performance numbers, there may be a slight delay before the sound changes.

Performance Volume (Pfm Vol)

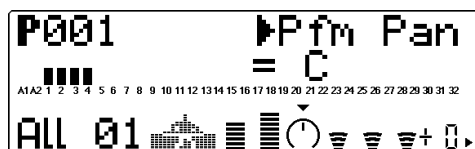
Range: 000 — 127



This determines the overall Volume of the Performance.

Performance Pan (Pfm Pan)

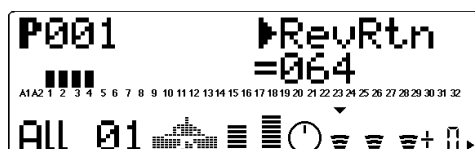
Range: L63 — C — R63



This determines the overall Pan position of the Performance.

Reverb Return (RevRtn)

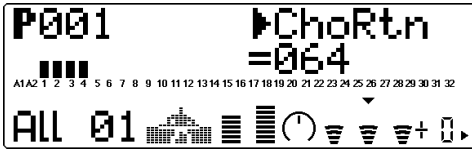
Range: 000 — 127



This determines the amount of Reverb return for the Performance in the overall mix.

Chorus Return (ChoRtn)

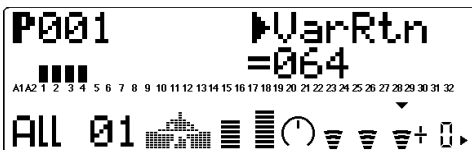
Range: 000 — 127



This determines the amount of Chorus return for the Performance in the overall mix.

Variation Return (VarRtn)

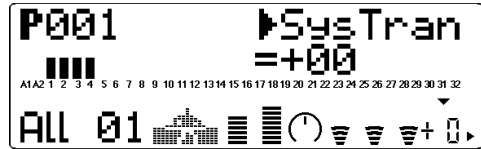
Range: 000 — 127



This determines the amount of Variation return in the overall mix of the Performance. Variation Return is only available when the **Variation Connection** parameter is set to **SYS**. (See page 145.)

System Transpose (SysTran)

Range: -24 — +24 semitones



This determines the overall Transpose setting of the Performance.

Single Part

For basic information on using the Single Part controls in the Performance mode, see page 46.

Bank Number

Settings:

A1 part: 000 — 003, 018, 019

A2 part: 000 — 003

1 — 4 part:

XG Voice banks,
MU100 Exclusive Voice banks,
VL Voice banks



This determines the bank number of the selected Part's Voice. Each bank contains 128 Voices. (Refer to the **SOUND LIST & MIDI DATA** booklet.)

Program (Voice) Number

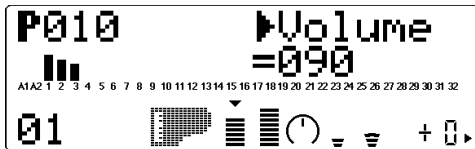
Range: 001 — 100



This determines the Voice for the selected Part. (Refer to the **SOUND LIST & MIDI DATA** booklet.)

Volume

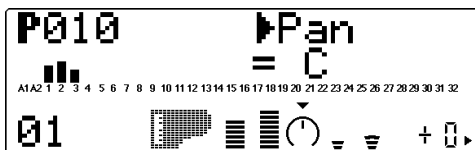
Range: 000 — 127



This determines the Volume setting for the selected Part's Voice.

Pan

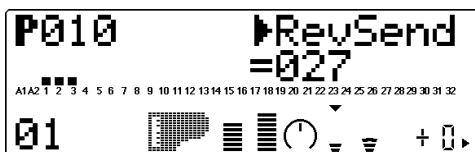
Settings: Rnd (Random), L63 — C — R63



This determines the stereo position of the selected Part's Voice. A setting of "Rnd" (Random) randomly assigns the Voice to a pan position. This is useful when you want to have different Voices sound from different random parts of the stereo image.

Reverb Send (RevSend)

Range: 000 — 127



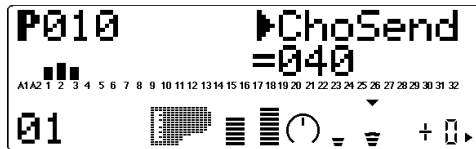
This determines the level of the selected Part's Voice that is sent to the Reverb effect. A value of 000 results in a completely "dry" Voice sound.

NOTE

Keep in mind that the Reverb effect must be properly enabled and set for this parameter to work as intended. (See page 142.)

Chorus Send (ChoSend)

Range: 000 — 127



This determines the level of the selected Part's Voice that is sent to the Chorus effect. A value of 000 results in a completely "dry" Voice sound (no Chorus effect).

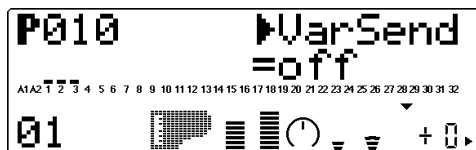
NOTE

Keep in mind that the Chorus effect must be properly enabled and set for this parameter to work as intended. (See page 143.)

Variation Send (VarSend)

Settings:

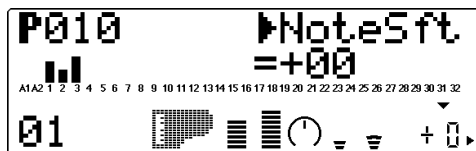
off, on (when **Variation Connection** is set to **INS**);
000 — 127 (when **Variation Connection** is set to **SYS**)



This determines whether the selected Part's Voice is sent to the Variation effect or not. A setting of **off** or **000** results in no Variation effect being applied to the Voice.

Note Shift (NoteSft)

Range: -24 — +24 semitones

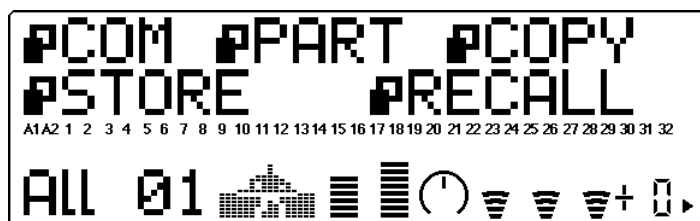


This determines the key transposition setting for the Part's Voice.

Performance Edit Mode

The Performance Edit mode features various functions and parameters, grouped in the following sections: Common (related to the Performance as a whole), Part (related to each of the four Parts), and the Copy and Store operations.

For basic information on using the Performance Edit mode, see page 43.



Common

Path: [EDIT] button → " COM"

Common

<u>Performance Name</u>	132
• Performance Name (Perform Name)	
<u>Portamento Parameters</u>	132
• Portamento Switch (PortamnSw)	
• Portamento Time (PortamnTm)	
<u>Modulation Wheel Parameters</u>	132
• LFO Pitch Modulation Depth (MW LEOPMod)	
• LFO Filter Modulation Depth (MW LFOFMod)	
<u>Pitch Bend</u>	133
• Pitch Bend Control (PitBndCtrl)	
<u>A/D Part</u>	133
• A/D Part	
<u>Assignable Controller Parameters</u>	133
• Assignable Controller 1 Control Change Number (AC1 CC No.)	
• Assignable Controller 1 Filter Control (AC1 FilCtrl)	
• Assignable Controller 1 Amplitude Control (AC1 AmpCtrl)	
• Assignable Controller 1 LFO Filter Modulation Depth (AC 1 LFOFMod)	

The Common parameters allow you to name a Performance, enable the A/D Parts for a Performance, and set the control change number for realtime parameter control.

Performance Name

Performance Name (Perform Name)



This allows you to give a name to your edited Performance.

Operation

- 1 From the Performance Name display, press the ENTER button.

Performance name



- 2 Use the SELECT (◀/▶) buttons to select the character position (flashing character) in the name and use the VALUE (−/+), buttons or data dial to change the character at that position.

Use these to move among character positions.

Flashes to indicate character position.



Use these to change character at selected position.

Up to 12 characters can be used for the Performance name. Available characters include all letters of the alphabet, in both upper and lower case, numbers from 0 to 9, and a variety of miscellaneous characters.

(Space) ABCDEFGHIJKLMNOP
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789!"#\$%
&'()*+,-./:
;<=>?[^_`{|
}~€

- 3 Press the EXIT button to return to the previous display (or press the PLAY button to return to the Play display).

After creating and naming a Performance, you'll probably want to save that Performance for future recall. For instructions on saving a Performance, refer to the Store operation on page 138.

Portamento Parameters

Portamento Switch (PortamnSw)

Same as the corresponding parameter in the Multi Edit mode. (See page 109.)

Portamento Time (PortamnTm)

Same as the corresponding parameter in the Multi Edit mode. (See page 109.)

Modulation Wheel Parameters

Modulation Wheel — LFO Pitch Modulation Depth (MW LFOPMod)

Same as the corresponding parameter in the Multi Edit mode. (See page 112.)

Modulation Wheel — LFO Filter Modulation Depth (MW LFOFMod)

Range: 000 — 127



This determines how widely the Filter (page 135) is modulated by the LFO (low frequency oscillator). This is generally controlled from a modulation wheel on a MIDI keyboard, and depending on the Voice used, it creates a “swoosh” or “wah-wah” filter sweep effect. Higher values result in deeper filter modulation, creating a more pronounced filter sweep effect.

Pitch Bend

Pitch Bend Control (PitBndCtrl)

Same as the corresponding parameter in the Multi Edit mode. (See page 111.)

A/D Part

A/D Part

Settings: off, on



Height of bars indicates A/D Part setting. (A single bar indicates “off” setting, while full height indicates “on.”)

This determines whether A/D Parts are enabled for the Performance or not. When set to “on,” Parts 3 and 4 are automatically set as A/D Parts (A1 and A2).

HINT

You can use the MU100R strictly as an effect processor for the A/D input (for example, your guitar or microphone) by Soloing the appropriate A/D Part (A1 or A2).

Assignable Controller Parameters

Assignable Controller 1 Control Change Number (AC1 CC No.)

Same as the corresponding parameter in the Multi Edit mode (page 112), with the exception that AC1 in the Performance mode can also control LFO filter modulation (see Assignable Controller 1 LFO Filter Modulation Depth below).

Assignable Controller 1 Filter Control (AC1 FilCtrl)

Same as the corresponding parameter in the Multi Edit mode. (See page 112.)

Assignable Controller 1 Amplitude Control (AC1 AmpCtrl)

Same as the corresponding parameter in the Multi Edit mode. (See page 113.)

Assignable Controller 1 LFO Filter Modulation Depth (AC1LFOFMod)

Range: 000 — 127



This determines the degree to which Assignable Controller 1 (AC1) affects the LFO modulation of the Filter. This creates a regular and continuous “wah-wah” or filter sweep effect. The higher the value, the greater the LFO filter modulation. (The control number used for AC1 is set in the Assignable Controller 1 Control Change Number parameter above.)

Part

Path: [EDIT] button → " PART"

PART

FILTER

- LPF Cutoff Frequency
- LPF Resonance
- HPF Cutoff Frequency

EG (Envelope Generator)

Level/Filter EG Parameters

- EG Attack Time
- EG Decay Time
- EG Release Time

Pitch EG Parameters

- Pitch EG Initial Level
- Pitch EG Attack Time
- Pitch EG Release Level
- Pitch EG Release Time

EQ (Equalizer)

- EQ Low Frequency
- EQ Low Gain
- EQ High Frequency
- EQ High Gain

Vibrato

- Vibrato Rate
- Vibrato Depth
- Vibrato Delay

Others

Detune 136

- Detune

Assignment 136

- Mono/Poly Mode

Note Limit Parameters 136

- Note Limit Low
- Note Limit High

Dry Level 136

- Dry Level (VarConnect=SYS)

Velocity Parameters 136

- Velocity Sensitivity Depth
- Velocity Sensitivity Offset
- Velocity Limit Low
- Velocity Limit High

Plugin

The Part menu contains the Filter, EG, Vibrato, Others and Plugin parameters for the Performance.

Filter

Path:[EDIT] button → "PART" → "FILTER" ("FIL" when a VL Part is selected)

The Filter section of Performance Edit parameters are the same as the corresponding parameters in the Multi Edit mode. (See page 100.)

EG

Path:[EDIT] → "PART" → "EG"

The EG section of Performance Edit parameters are the same as the corresponding parameters in the Multi Edit mode. (See page 102.)

EQ

Path:[EDIT] → "PART" → "EQ"

The EQ Performance Edit parameters are the same as the corresponding parameters in the Multi Edit mode (See page 105).

Vibrato

Path:[EDIT] button → "PART" → "VIBRATO" ("VIB" when VL Part is selected)

The Vibrato Performance Edit parameters are the same as the corresponding parameters in the Multi Edit mode. (See page 106.)

Others

Path:[EDIT] button → "PART" → "OTHERS"

The Others Performance Edit parameters contains miscellaneous controls, including those related to tuning, velocity, note range, etc. With a few omitted parameters, these are the same as the parameters in the Multi Edit mode.

NOTE

The Part Edit parameter (available in Multi Edit) is not available in Performance Edit mode. No Drum Parts can be selected for a Performance.

Detune

Detune

Same as the corresponding parameter in the Multi Edit mode. (See page 108.)

Assignment

Mono/Poly Mode

Same as the corresponding parameter in the Multi Edit mode. (See page 109.)

Note Limit Parameters

Note Limit Low (NoteLimitL)

Same as the corresponding parameter in the Multi Edit mode. (See page 110.)

Note Limit High (NoteLimitH)

Same as the corresponding parameter in the Multi Edit mode. (See page 110.)

Dry Level

Dry Level

Same as the corresponding parameter in the Multi Edit mode. (See page 110.) This parameter is only available when the Variation Connection parameter is set to **SYS**. (See page 145.)

Velocity Parameters

Velocity Sensitivity Depth (VelSensDpt)

Same as the corresponding parameter in the Multi Edit mode. (See page 110.)

Velocity Sensitivity Offset (VelSensOfs)

Same as the corresponding parameter in the Multi Edit mode. (See page 111.)

Velocity Limit Low (VelLimitLo)

Same as the corresponding parameter in the Multi Edit mode. (See page 111.)

Velocity Limit High (VelLimitHi)

Same as the corresponding parameter in the Multi Edit mode. (See page 111.)

Plugin

Path: [EDIT] button → "PART" → "PLUGIN"

The VL Voice section parameters of Performance Edit are the same as the corresponding parameters in the Multi Edit mode. (See page 119.)

Copy and Store Operations

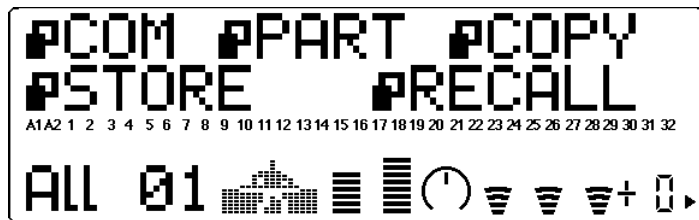
The Copy and Store operations allow you to save and organize the Performances you've created.

Copy

The Copy operation allows you to copy the settings of one Performance program (Preset or Internal) to another Performance number (Internal only).

Operation

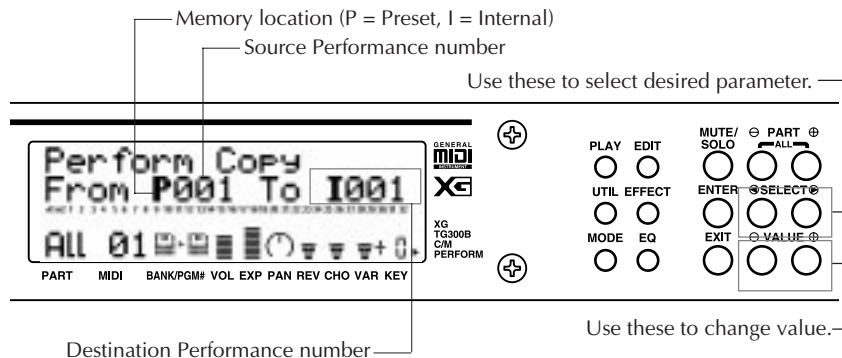
- 1 From the Performance Edit menu, use the SELECT ◀/▶ buttons to select "COPY." Then, press the ENTER button to call up the Copy operation.



ENTER



- 2 Use the SELECT ◀/▶ buttons to select the desired parameter: memory location, source number or destination number. (The selected parameter flashes.) Then use the VALUE −/+ buttons or data dial to change the value.



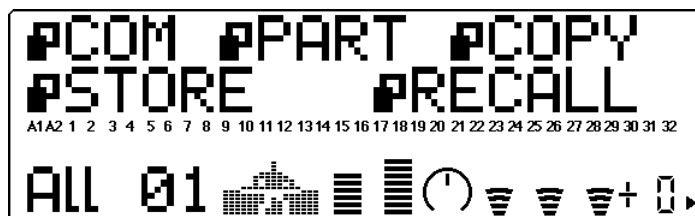
- 3 Press the ENTER button to actually execute the Copy operation. An "Executing..." message flashes in the display during the operation. When the data has been copied, the MU100R returns to the Performance Edit menu. To cancel the operation without copying, press the EXIT button (before pressing ENTER).

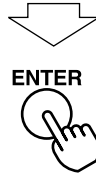
Store

Once you've edited or created a Performance, you can save that new Performance for future recall by using the Store operation. Performances can be saved to any one of the 100 Internal memory locations. With the exception of the Receive Channel and Transpose (Note Shift) settings made from the Play screen, all parameter settings in the Play screen and in the Edit, Effect and EQ modes are saved to the selected Performance number.

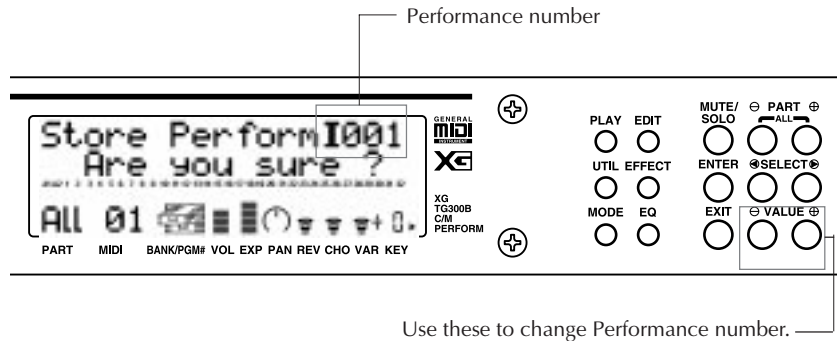
Operation

- 1 From the Performance Edit menu, use the SELECT ◀/▶ buttons to select "STORE." Then, press the ENTER button to call up the Store operation.





- 2** Use the VALUE \ominus/\oplus buttons or data dial to change the destination Performance number.



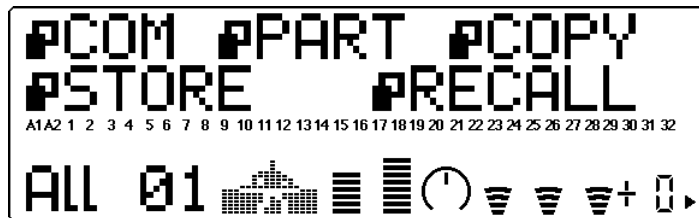
- 3** Press the ENTER button to actually execute the Store operation. An “Executing...” message flashes in the display during the operation. When the data has been stored, the MU100R returns to the Performance Edit menu.
- To cancel the operation without saving, press the EXIT button (before pressing ENTER).

Recall Function

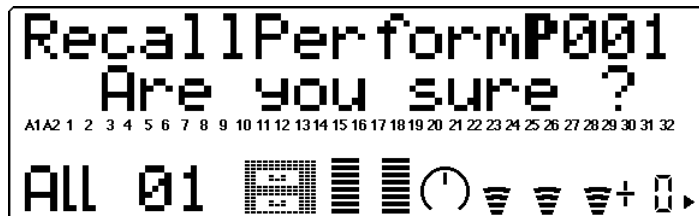
Recall is a convenient function that allows you to recover an accidentally deleted Performance. For example, if you are editing a Performance and inadvertently select a different Performance, the edited Performance would normally be lost. By using Recall before turning off the MU100R or editing another Performance, you can recover the previously edited Performance data.

To use Recall:

- 1 Select RECALL in the Performance Edit Mode menu, then press the ENTER button.



The following display briefly appears:



- 2 At the "Are you sure?" prompt above, press the ENTER button again to execute the function.

If no previously edited Performance data exists, the following display briefly appears, indicating no Performance can be recalled.



Effect Edit Mode

The MU100R features a built-in multi-effect processor with 6 independent digital effects: Reverb, Chorus, Variation, Insertion 1/2 and EQ. The first 5 of these are controlled in the Effect Edit mode.

In this section, only the effect Types and the global parameters common to all Types are covered. For descriptions and details on the parameters for each effect Type, refer to the separate **SOUND LIST & MIDI DATA** booklet.

To enter the Effect Edit mode, press the **EFFECT** button. The following menu appears:



Reverb (REV)	142
Chorus (CHO)	143
Variation (VAR)	144
Insertion 1, 2 (INS 1, 2)	146
Plugin (PLG) — Harmony Parameters	147
About the Effect Connections — System and Insertion	152

Reverb (REV)

Reverb recreates the sounds of various performance environments by adding an ambient wash of delays or reflections. Several different types of Reverb effects are available to simulate the ambience of different sized rooms. Explanations of the Reverb Type and Reverb Pan parameters are given below. For descriptions and explanations for all other Reverb parameters, refer to the separate **SOUND LIST & MIDI DATA** booklet.

Type

Settings: NO EFFECT, HALL 1 — 2, ROOM 1 — 3, STAGE 1 — 2, PLATE, WHITE ROOM, TUNNEL, CANYON, BASEMENT



This determines the Reverb Type. Each Reverb Type has different values for the rest of the Reverb parameters; for example, Basement has a Reverb Time of 0.6 seconds, while Canyon has a Reverb Time of 12.0 seconds.

NOTE

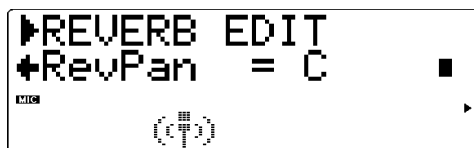
When “NO EFFECT” is selected, Reverb is off and none of the other Reverb parameters are available (with the exception of the Reverb Pan parameter).

HINT

Generally when using Reverb, you can simply select the particular Type needed, and use it without bothering to adjust the other parameters. If fine tuning of the Reverb sound is necessary, delve into the other parameters as needed.

Reverb Pan (RevPan)

Range: L63 — C — R63



This determines the Pan position of the Reverb sound, or where it appears in the stereo image.

For details on the parameters for each Reverb Type, refer to the separate **SOUND LIST & MIDI DATA** booklet.

Chorus (CHO)

The Chorus section uses pitch modulation to create a variety of rich, spacious-sounding effects, including Chorus, Flanger, Symphonic and Phaser. Explanations of the Chorus Type and Chorus Pan parameters are given below. For descriptions and explanations for all other Chorus parameters, refer to the separate **SOUND LIST & MIDI DATA** booklet.

Type

Settings: NO EFFECT; CHORUS 1 — 4; CELESTE 1 — 4; FLANGER 1 — 3; SYMPHONIC; ENSEMBLE DETUNE; PHASER 1



This determines the Chorus Type. Depending on the Type selected, the specific parameters and values may differ.

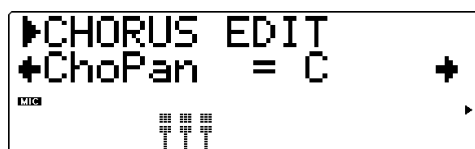
Chorus 1 and 2 are used to subtly enhance the sound, and generally make it richer, fatter and warmer. Flanger uses modulation to create an animated, swirling motion effect, and produces a characteristic metallic sound. Symphonic also subtly enhances the sound by making a single instrument Voice sound like several. Phaser is similar to Flanger, but with a stronger and deeper modulation.

NOTE

When NO EFFECT is selected, Chorus is off and none of the other Chorus parameters are available (with the exception of the Chorus Pan and Send Chorus to Reverb parameters).

Chorus Pan (ChoPan)

Range: L63 — C — R63



This determines the Pan position of the Chorus sound, or where it appears in the stereo image.

Send Chorus to Reverb (SendCho → Rev)

Range: 000 — 127



This determines the level of the Chorus signal sent to and processed by the Reverb effect. A setting of 000 results in none of the Chorus-processed signal going to the Reverb.

HINT

Setting this to a relatively high level gives you a more natural sound, since the Chorus-processed sound is also being processed by the reverb. More unusual effects can be created by having a long Reverb and setting this to 0, so that the Chorus sound is dry (no Reverb) and the original sound is “drenched” in Reverb.

For details on the parameters for each Chorus Type, refer to the separate **SOUND LIST & MIDI DATA** booklet.

Variation (VAR)

The Variation section provides a wealth of additional effects for processing the Voices of the MU100R. It features some of the same effects found in the Reverb, Chorus and Insertion sections. This is not mere redundancy; it allows you to use two types of Reverb, Chorus or other effects on different Voices. For example, you may want to have the Flanger effect on one Voice and Phaser on another. Variation also gives you many special effects not found in the other sections, such as Delay, Gate Reverb, Wah and Pitch Change.

The Variation section of effects can be applied either to a single selected Part or to all Parts, depending on the connection setting: Insertion or System. (See **About the Effect Connections — System and Insertion** on page 152 for more information.)

Explanations of the Variation Type and other common parameters are given below. For specific descriptions of Variation Types and explanations for all other Variation parameters, refer to the separate **SOUND LIST & MIDI DATA** booklet.

Type

Settings: NO EFFECT; WHITE ROOM; TUNNEL; CANYON; BASEMENT; DELAY L,C,R; DELAY L,R; ECHO; CROSS DELAY; ER 1 — 2; GATE REVERB; REVERSE GATE; KARAOKE 1 — 3; CHORUS 1 — 4; CELESTE 1 — 4; FLANGER 1 — 3; SYMPHONIC; ENSEMBLE; DETUNE; AMBIENCE; ROTARY SPEAKER; 2WAY ROTARY SPEAKER; TREMOLO; AUTO PAN; PHASER 1 — 2, DISTORTION; COMP+ DISTORTION; OVER DRIVE; AMP SIMULATOR; 3BAND EQ (MONO); 2BAND EQ (STEREO); AUTO WAH (LFO); AUTO WAH+DIST; AUTO WAH+ODRV; TOUCH WAH 1; TOUCH WAH+DIST; TOUCH WAH+ ODRV; TOUCH WAH 2; PITCH CHANGE 1 — 2; AURAL EXCITER®; COMPRESSOR; NOISE GATE; VOICE CANCEL; TALK MOD; LO-FI;

DIST+DELAY;
ODRV+DELAY;
CMP+DT+DLY;
CMP+OD+DLY;
WAH+DT+DLY;
WAH+OD+DLY; THRU



NOTE

When NO EFFECT or THRU is selected for the Type, no Variation effect is applied, and only the common parameters shown below are available (with the exception of Dry/Wet). The NO EFFECT setting cancels the Variation effect. When the Variation Connection is set to SYS (System), the sound can be heard with no effect. When the Variation Connection is set to INS (Insertion), no sound is output for the Part.

When set to THRU, the sound of the Part (or Parts) is output without any Variation effect. Generally, when Variation Connection is set to INS (Insertion), you should set the Type to Thru. When Variation Connection is set to SYS (System), you should set the Type to NO EFFECT.

Dry/Wet (Insertion connection)

Range: D63>W — (D=W) — D<W63
 Adjusts the level balance of original sound (dry, or **D**) and processed sound (wet, or **W**). A setting of (**D=W**) results in an equal balance of dry and wet sound.

Assignable Controller 1 Variation Control (AC1VarCtrl) (Insertion connection)

Range: 000 — 127
 Determines the amount of effect the Assignable Controller has on the Variation effect.

Variation Pan (VarPan) (System connection)

Range: L63 — C — R63
 Determines the pan position of the Variation effect.

Send Variation to Chorus (SendVar→Cho) (System connection)

Range: 000 — 127
 Determines the amount of Variation effect sound that is sent to the Chorus effect.

Send Variation to Reverb (SendVar→Rev) (System connection)

Range: 000 — 127
 Determines the amount of Variation effect sound that is sent to the Reverb effect.

Variation Connection (VarConnect)

Settings: **INS** (Insertion), **SYS** (System)
 Determines how the Variation effect is connected in the effect chain of the MU100R. When set to **SYS** (System), Variation is applied to all Parts, according to the amount of Variation Send set for each Part. When set to **INS** (Insertion), Variation is applied to only the selected Part, set in Send Variation parameters (see above).

NOTE

The common parameters above are common to nearly all the Variation effect types. (Exceptions are described in the separate SOUND LIST & MIDI DATA booklet.)

Insertion 1, 2 (INS 1, 2)

The Insertion 1 and 2 effects provide additional effects for processing individual Parts.

Explanations of the Type, Dry/Wet Balance and Part parameters are given below. For descriptions and explanations for all other parameters, refer to the separate **SOUND LIST & MIDI DATA** booklet.

The Insertion effects are set up for Insertion routing and can be applied only to a single selected Part. Refer to **About the Effect Connections — System and Insertion** on page 152 for more information.

Type

Settings: THRU; HALL 1 — 2; ROOM 1 — 3; STAGE 1 — 2; PLATE; DELAY L,C,R; DELAY L,R; ECHO; CROSS DELAY; KARAOKE 1 — 3; CHORUS 1 — 4; CELESTE 1 — 4; FLANGER 1 — 3; SYMPHONIC; ENSEMBLE DETUNE; ROTARY SPEAKER; TREMOLO; AUTO PAN; PHASER 1; DISTORTION; OVER DRIVE; AMP SIMULATOR; 3BAND EQ (MONO); 2BAND EQ (STEREO); AUTO WAH (LFO); TOUCH WAH 1 — 2, AURAL EXCITER®, COMPRESSOR; NOISE GATE



NOTE

When Thru is selected, no effect is applied, and none of the parameters are available (with the exception of the Part parameter).

Dry/Wet Balance

Range: D63>W — (D=W) — D<W63

This determines the balance between the direct, unprocessed signal (dry) and the processed sound (wet). Use this parameter together with the Output Level parameter above to obtain the desired overall sound.

Assignable Controller 1 Insertion 1/2 Control (AC1INS1/2Ctrl)

Range: -64 — +63



This determines the degree to which Assignable Controller 1 (AC1) affects the MIDI-controllable parameters of the Insertion effects. Each of the Insertion effect types have one parameter which can be controlled by the AC1. (For details, see the "Effect Parameter List" of the "SOUND LIST & MIDI DATA" booklet.) This parameter is not available in the performance mode.

Insertion 1, 2 Part (INS 1, 2 Part)

Range: Part 1 — 32, AD 1, AD 2, off



This determines the Part to which the Insertion effect is applied. Insertion can be applied to only one Part at a time.

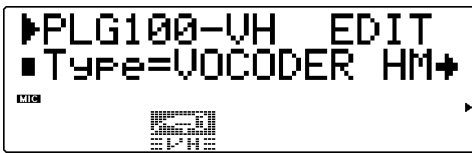
Plugin (PLG) — Harmony Parameters

Path: [EFFECT] button → “PLG” → “PLG100-VH”

These parameters control the Harmony effect. Other Harmony parameters not included in this section are the MIDI channel settings for the harmony and melody, which are set in the Utility mode (see page 171). For general information on the Harmony effect and how to use it, refer to the Guided Tour section, page 77.

Type

Settings: THRU, VOCODER HM, CHORDAL HM, DETUNE HM, CHROMAT.HM (Chromatic)



This determines the Type of the Harmony effect (as explained below). For information on how each of these Types can be set, refer to the Mode parameter (page 148), which features different settings depending on the Type. Other Harmony parameters may or may not be available, depending on the Type selected here.

Thru

No Harmony effect is applied.

NOTE

When Thru is selected, the only other available parameter is Insert Part (page 151).

Vocoder

This produces up to three harmony notes whose pitches correspond to the notes you play on a connected MIDI keyboard. In other words, you can sing the melody and “play” the harmony or harmonies from the keyboard (or from a sequencer). The Harmony sound can also be transposed (see the Mode parameter below).

NOTE

When more than three MIDI notes are received (or two notes, when the Lead Gender Type parameter is set to any setting but “off”), priority is given first to the most recently played notes. (In other words, the harmonies of earlier notes are cut off.)

Hint

The Vocoder Type is best suited when:

- You want to determine the precise harmony notes yourself, including their octave register and whether they are above or below the original melody note.
- You want to use harmony notes and voicings that fall outside the standard chords available in the Chordal type (below).
- You can play the harmony part on the keyboard, or have it played on a sequencer.
- You want to precisely control how the harmony note or notes change pitch around a fixed melody pitch.

Chordal

This produces up to three harmony notes that correspond to the chords you play on a connected MIDI keyboard (or chords recorded to a sequencer). For example, if you play a C major triad on the keyboard and sing C note (and Chordal Mode is set to “trio”), the resulting harmonies will be C, E, and G. Thirty-four different chord types are recognized in this mode (see list below), giving you an amazingly full and flexible palette of harmonies, suitable for nearly any music style. The number of harmonies produced and their position above or below the melody is set in the Mode parameter (page 148).

In general, the Chordal Type is best suited when you want to simply play the chords and have the Harmony effect automatically sort out the suitable notes.

Chords Recognized in Chordal Type

Detune

This produces a slightly “detuned” pitch and mixes it with the input signal for a rich chorusing effect. The amount of the detuning is set in the Mode parameter. MIDI note data from a keyboard or sequencer has no effect in this type.

NOTE

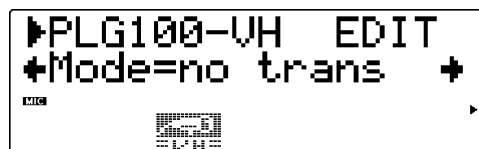
When Detune is selected, the Harmony Gender Type and Lead Pitch Correction parameters are not available.

Chromatic (CHROMAT.HM)

This produces a harmony at a fixed pitch interval from the original sound (such as an octave, or a third). The amount of the pitch shift is set in the Mode parameter. MIDI note data from a keyboard or sequencer has no effect in this type.

Mode

Settings: (Available settings differ depending on selected Type; see below.)



For Vocoder Type:

no trans

No transposition. The harmony notes correspond exactly to the pitch of the incoming MIDI notes.

auto trans

Automatic transposition of the harmony notes. This keeps the harmony notes close (± 600 cents) to the input signal, no matter which octave the MIDI notes are played. For example, if your vocal is at a pitch of C3, playing an E note anywhere on the connected MIDI keyboard results in a harmony note of E3.

-3oct trns — +3oct trns

This fixes the octave transposition of the harmony notes, selectable from 3 octaves below (-) to 3 octaves above (+).

For Chordal Type:

duet above (Duet Above)

Produces one harmony note, in a pitch above the lead note.

duet below (Duet Below)

Produces one harmony note, in a pitch below the lead note.

duet abv+b (Duet Above + Bass)

Produces two harmony notes — one in a pitch above the lead note, and one an octave below the chord root harmony. (The “+b” in the type name stands for “added bass note.”)

trio above (Trio Above)

Produces two harmony notes, in pitches above the lead note.

trio a&b (Trio Above & Below)

Produces two harmony notes — one in a pitch above the lead note, and one below.

trio below (Trio Below)

Produces two harmony notes, in pitches below the lead note.

trio a&b+b (Trio Above & Below+Bass)

Produces three harmony notes — one in a pitch above the lead note, and two below — one of them an octave below the chord root harmony. (The “+b” in the type name stands for “added bass note.”)

quar above (Quartet Above)

Produces three harmony notes, in pitches above the lead note.

quar a&b (Quartet Above & Below)

Produces three harmony notes — two in pitches above the lead note, and one below.

quar below (Quartet Below)

Produces three harmony notes, in pitches below the lead note.

For Detune Type:**low**

Detunes the pitch by ± 7 cents (least amount of detuning).

mid-low

Detunes the pitch by ± 11 cents.

mid-high

Detunes the pitch by ± 15 cents.

high

Detunes the pitch by ± 20 cents (most amount of detuning).

For Chromatic Type:**oct below**

Produces a harmony note an octave below the input note.

3rd below

Produces a major third harmony note in the octave below the input note. (Harmony is transposed eight semitones down.)

5th below

Produces a perfect fifth harmony note in the octave below the input note. (Harmony is transposed five semitones down.)

unison

Produces a “harmony” note at the same pitch as the input note. (This can be clearly distinguished from the original signal by changing the Harmony Gender; see below.)

3rd above

Produces a major third harmony note in the same octave as the input note. (Harmony is transposed four semitones up.)

5th above

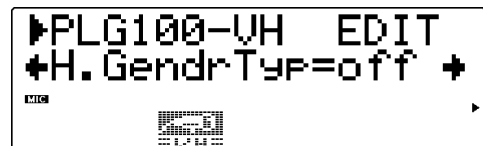
Produces a perfect fifth harmony note in the same octave as the input note. (Harmony is transposed seven semitones up.)

oct above

Produces a harmony note an octave above the input note.

Harmony Gender Type (H.GendrTyp)

Settings: off, Auto



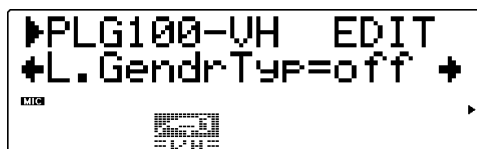
This determines the gender of the harmony notes. When set to “off,” the gender of the harmony notes does not change (relative to the actual gender of the singer). When set to “Auto,” keep in mind that the gender change effect may vary according to the quality, character and pitch of the actual voice.

NOTE

The Harmony Gender Type parameter is not available when Harmony Type is set to Detune (page 147).

Lead Gender Type (L.GendrTyp)

Settings: off, unis (unison), male, fem. (female)



These settings determine whether the gender of the “lead” voice can be changed or not. It also lets you set the gender. When this is set to “off,” the gender of the lead voice cannot be changed. When this is set to “unis” (unison), the lead voice is reproduced at the same pitch as the voice; however, the gender can be changed by using the Lead Gender Depth parameter below. The “male” and “fem.” (female) settings reproduce the voice with the respective male or female vocal qualities. (To finely adjust the quality of the lead voice, use the Lead Gender Depth parameter below.)

NOTE

When this is set to “unis”, “male” or “fem.”, up to two-part harmonies are provided.

Using the Lead Voice

To properly use the lead voice, make sure to set the following parameters:

Lead Gender Type

— “unis,” “male,” or “fem.”

Lead Gender Depth

— Set to desired/appropriate value.

Lead/Harmony Balance

— Set to appropriate value. (For values at or near the maximum of “L<H63,” lead may not sound.)

You can control the pitch of the lead voice separately from the harmonies. One useful application would be to have melody and harmony data on different tracks/MIDI channels of sequencer song data — the melody track would control the pitch of the lead voice, while the harmony track would control the harmonies. This would ensure that all vocal parts stay in tune with each other and with the song — even if your actual singing is slightly off pitch!

To control the pitch of the lead voice from a connected MIDI keyboard or sequencer (separate from the harmonies), make the following settings:

Lead Gender Type

— “unis”, “male”, or “fem.”

Pitch Correction

— “on”

Melody Channel (page 171)

— Set to same channel as the MIDI device. (Match this to the melody track of the song data.)

Harmony Channel (page 171)

— Set to different value from Melody Channel. (Match this to the harmony track of the song data.)

Lead Gender Depth (L.GendrDpt)

Range: -64 — +63



This determines the quality or character of the lead voice, and depends on the setting made in Lead Gender Type above. (This parameter has no effect when Lead Gender Type is set to “off.”) Extreme negative or positive values result in pronounced distortion of the voice quality. Also, the effect may vary according to the quality, character and pitch of the actual voice. Experiment with this to find values that sound most natural (or unnatural, if you prefer).

Lead Pitch Correction (PchCorrect)

Settings: off, on



This determines whether the pitch of the lead voice is controlled by MIDI note data or not. When this parameter and Lead Gender are set to “on,” the pitch of the lead voice is “corrected” to the pitch of the received MIDI note on Melody Channel (page 171).

NOTE

The Pitch Correction parameter is not available when Harmony Type is set to Detune (page 147). Also, this parameter has no effect when Lead Gender Type is set to “off.”

Lead/Harmony Balance (Lead/Harm)

Range: L63>H (maximum lead, minimum harmony) — L=H (equal level) — L<H63 (maximum harmony, minimum lead)



This determines the relative balance of the lead and harmony voices. For most pop song applications, this should be set to “L=H” or a slightly higher lead level (such as “L10>H” or more).

Insert Part (Ins Part)

Settings: 01 — 32, AD01, AD02, off



This determines the Part to which the Harmony effect is applied. For example, to apply Harmony to a microphone input through A/D INPUT 1, set this to “AD01.” When set to “off,” the Harmony effect is cancelled.

About the Effect Connections

— System and Insertion

The multi-effects of the MU100R provide not only a wide range of sound processing controls, but also a flexible system for connecting them. Unlike simple effect routing schemes on conventional sound modules that process all voices with the same effects, the MU100R allows you to put independent, special effects on one or two Parts, as well as use overall effects for processing all 34 Parts together. For example, you can have a Distortion effect on a guitar Part and a rotary speaker effect for an organ Part, yet still use ambient effects such as Reverb and Chorus for processing the overall mix.

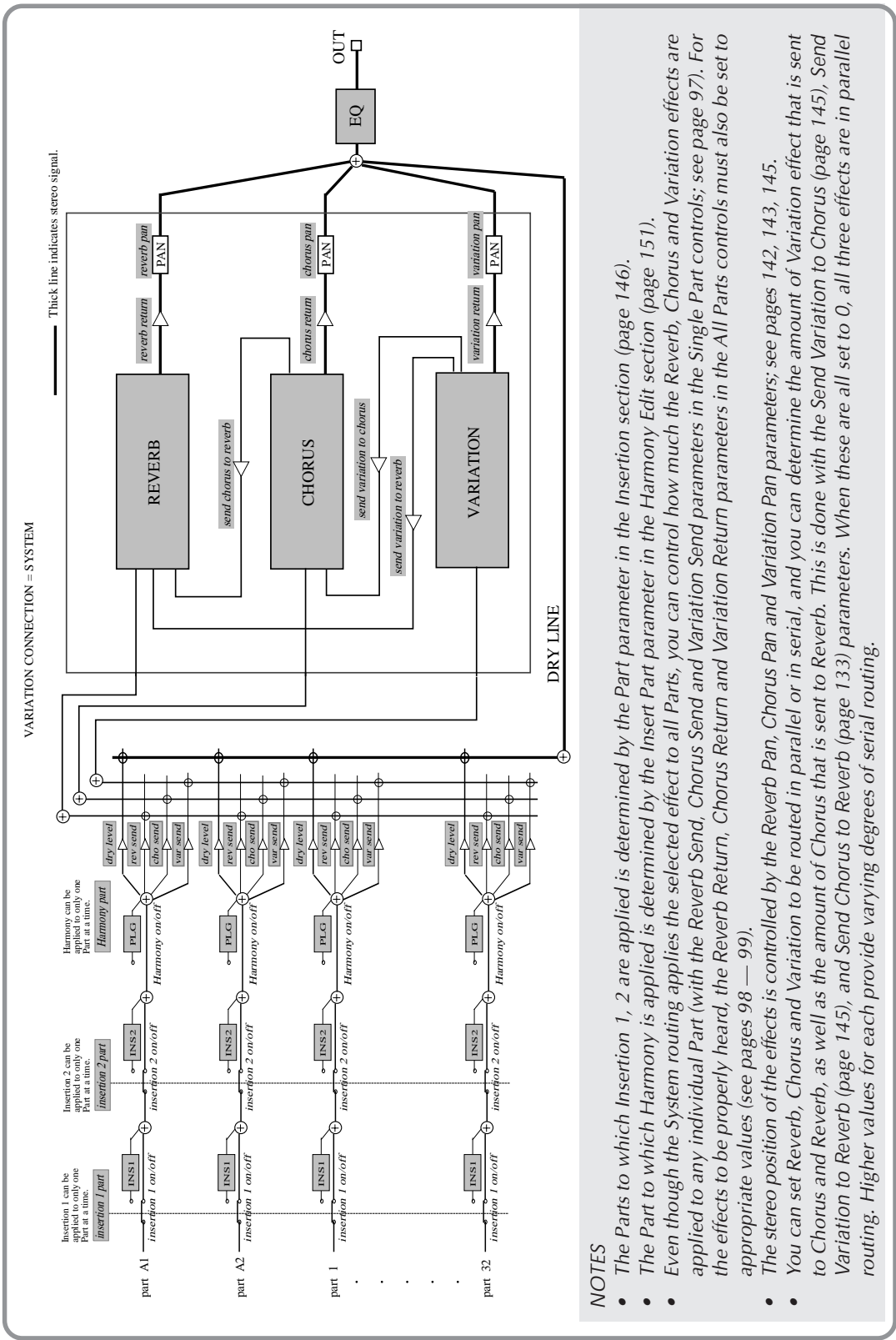
All the effect sections are connected or routed in one of two ways: **System** or **Insertion**. System applies the selected effect to all 34 Parts, while Insertion applies the selected effect to one specific Part. Reverb, Chorus, and EQ are all System effects, and Insertion 1 and 2, and Harmony are Insertion effects. The Variation effect section, on the other hand, can be configured for either System or Insertion routing. (This is done from the **Variation Connection** parameter; see page 145.) Since System and Insertion are part of the XG MIDI (Extended General MIDI) format, you can create and play back song data using the same flexible effect routings on any tone generator or sound module having the **XG** mark.

NOTE

The Variation Connection default setting is Insertion.

The illustrations and explanations below cover the System and Insertion connections in greater detail.

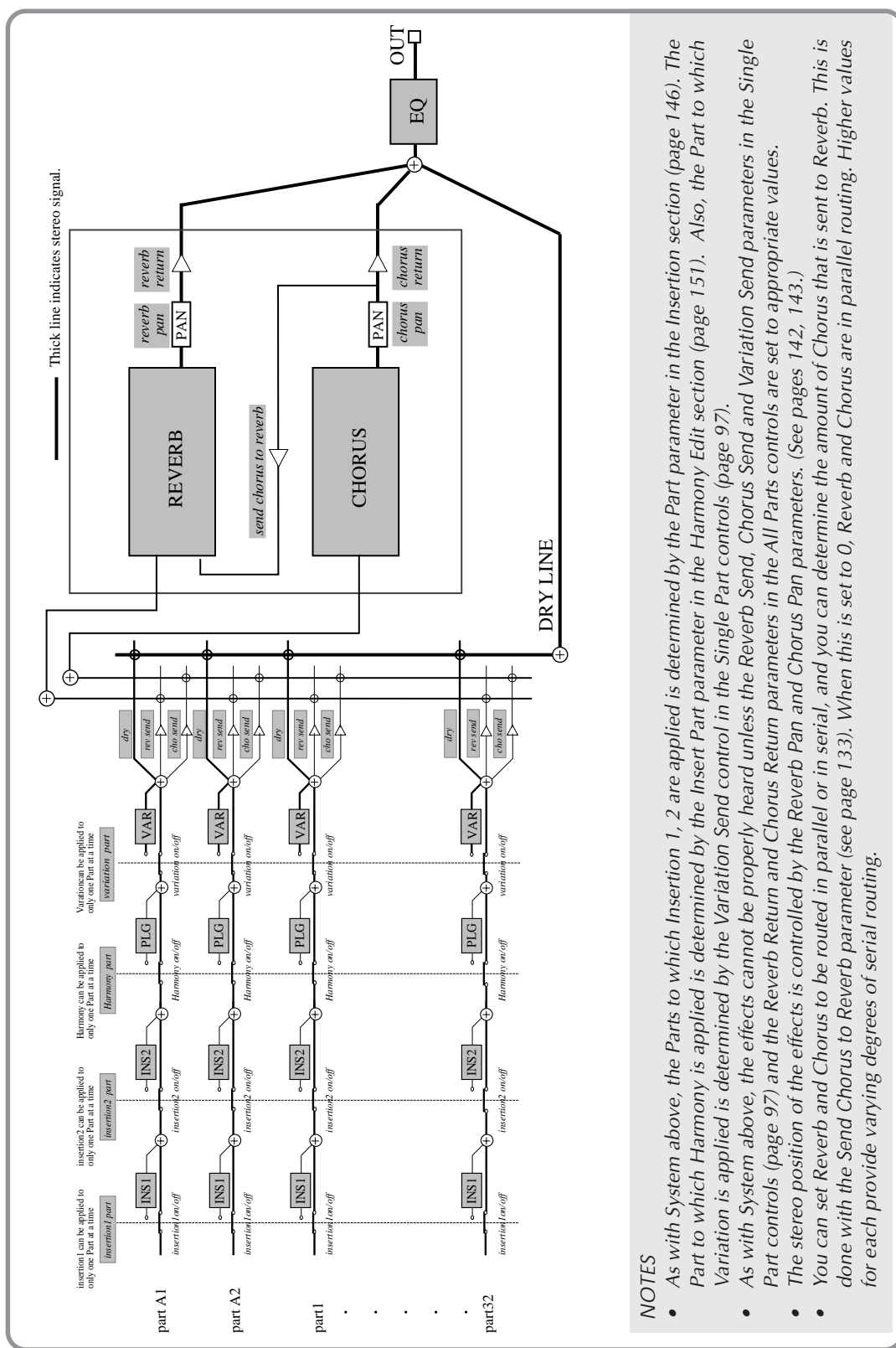
When Variation is set to System:



NOTES

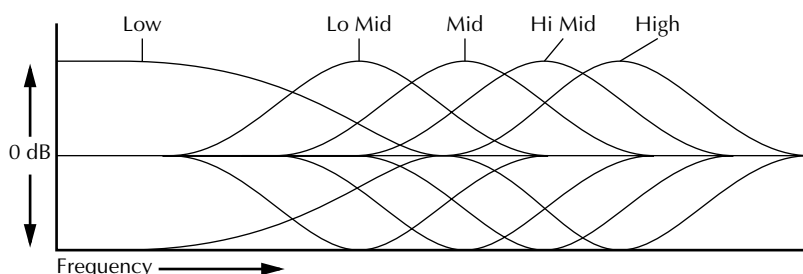
- The Parts to which Insertion 1, 2 are applied is determined by the Part parameter in the Insertion section (page 146).
- The Part to which Harmony is applied is determined by the Insert Part parameter in the Harmony Edit section (page 151).
- Even though the System routing applies the selected effect to all Parts, you can control how much the Reverb, Chorus and Variation effects are applied to any individual Part (with the Reverb Send, Chorus Send and Variation Send parameters in the Single Part controls; see page 97). For the effects to be properly heard, the Reverb Return, Chorus Return and Variation Return parameters in the All Parts controls must also be set to appropriate values (see pages 98 — 99).
- The stereo position of the effects is controlled by the Reverb Pan, Chorus Pan and Variation Pan parameters; see pages 142, 143, 145.
- You can set Reverb, Chorus and Variation to be routed in parallel or in serial, and you can determine the amount of Variation effect that is sent to Chorus and Reverb, as well as the amount of Chorus that is sent to Reverb. This is done with the Send Variation to Chorus (page 145), Send Variation to Reverb (page 145), and Send Chorus to Reverb (page 133) parameters. When these are all set to 0, all three effects are in parallel routing. Higher values for each provide varying degrees of serial routing.

When Variation is set to Insertion:



Equalizer (EQ) Edit

The Equalizer (EQ) Edit parameters allow you to adjust the overall tone of the MU100R sound in five separate frequency bands. EQ presets are also provided for instantly calling up tone settings specially suited for different types of music.



To enter the Equalizer Edit mode, press the **EQ** button.

EQ Type

Settings: Flat, Jazz, Pops, Rock, Concert

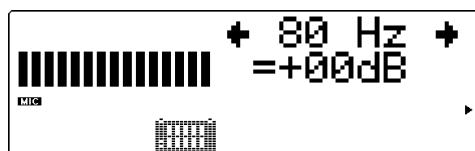


EQ Type provides five different preset EQ settings, specially programmed for specific types of music. The **Flat** setting is a “flat” EQ preset with no change in equalization. **Jazz**, **Pops**, **Rock** and **Concert** each have different EQ settings and frequency bands, specially suited for those types of music.

EQ Frequency Parameters

Thru: 80 Hz, 500 Hz, 1.0 kHz, 4.0 kHz, 8.0 kHz
Jazz: 50 Hz, 125 Hz, 900 Hz, 3.2 kHz, 6.3 kHz
Pops: 125 Hz, 315 Hz, 1.0 kHz, 2.0 kHz, 5.0 kHz
Rock: 125 Hz, 200 Hz, 1.2 kHz, 2.2 kHz, 6.3 kHz

Concert: 80 Hz, 315 Hz, 1.0 kHz, 6.3 kHz, 8.0 kHz
Range: -12 — +12 dB



The remaining EQ parameters let you set the level of each of the five frequency ranges: low, low-mid, mid, high-mid and high. The bars in the display show the EQ settings as a frequency “curve,” with peaks indicating level boosts in the frequency range and valleys indicating level cuts. A setting of 00 dB corresponds to no level change.

NOTE

Changing the EQ Type automatically restores the default Frequency Parameter settings and cancels any Frequency Parameter settings you have made.

Utility Mode

The Utility mode lets you set functions related to the overall operation of the MU100R, such as Master Tune, display contrast and playing of the Demo Song. Included also are utility operations, such as various kinds of data transfer with an external data storage device, and initializing of the MU100R settings.

To enter the Utility mode, press the **UTIL** button. The following menu appears:



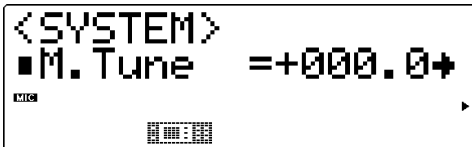
System Functions (SYS)	157
Dump Out Functions (DUMP)	161
Saving and Restoring Data via MIDI	161
Saving and Restoring Data via TO HOST	161
Initialize Functions (INIT)	165
Demo Song Play (DEMO)	168
VL Voice and Harmony System Parameters (PLUGIN)	169
VL Voice System Parameters	169
Harmony System Parameters	171

System Functions (SYS)

The System functions provide various controls of the overall operation of the MU100R, such as Master Tune, Mute and A/D Part Lock, some MIDI receive filters and a display Contrast control.

Master Tune (M.Tune)

Range: -102.4 — +102.3 cents
(approx. +/- 1 semitone)



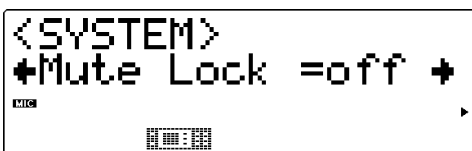
This determines the overall fine tuning of the MU100R's Voices. It also affects the pitch of the individual drum/percussion sounds of the drum kits. Master Tune is especially useful for adjusting the pitch of the MU100R when playing with other instruments. The actual pitch of each Voice depends also on the other pitch related parameters: Key (in Play mode) and Detune (in Edit mode).

NOTE

At around 440 Hz, 1 Hz is approximately equal to 4 cents.

Mute Lock

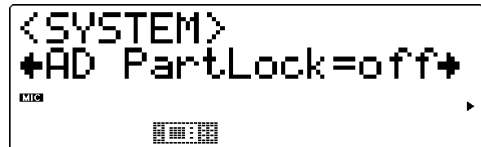
Settings: off, on



This determines whether or not the Part Mute status of the MU100R is reset when receiving a **GM System On** or **XG System On** message. Generally, this message is automatically transmitted to the MU100R as part of General MIDI song data. When Mute Lock is set to **off**, this resets the Mute status of the Parts on the MU100R. If you want to keep the current Mute settings and disable this reset, set Mute Lock to **on**. (For more information on the Mute function, see page 85.)

A/D Part Lock

Settings: off, on



This determines whether or not the current parameter values and Variation effect settings of the A/D Parts are reset when receiving a **GM System On** or **XG System On** message. If you want to keep the current parameter values and Variation settings of the A/D Parts, set Mute Lock to **on**. (This parameter has no effect in the Performance mode.)

Multi Mode Equalizer Lock (Mlt EQ Lock)

Settings: off, on



This determines whether the Equalizer settings (page 155) are initialized or change in response to incoming MIDI messages. When this is set to "on," the current Equalizer settings are maintained, ignoring any EQ-related messages that are received with XG System On or GM System On messages, allowing you to protect your original Equalizer settings. When set to "off," the Equalizer changes according to incoming XG/GM System On messages. This setting affects the Multi mode only, and not the Performance mode.

Output Select Lock (OutSel Lock)

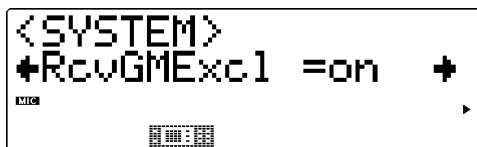
Settings: on, off



This determines whether or not the Output Select settings (pages 113, 118) are reset when receiving a **GM System On** or **XG System On** message. It also determines whether the Output Select setting for a Part can be edited via MIDI or not. If you want to “lock” the Output Select settings and keep them from being changed, set this to “on.”

Receive General MIDI Exclusive (RcvGMExcl)

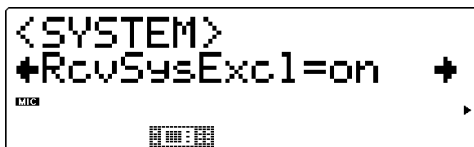
Settings: off, on



This determines whether **GM System On** or **XG System On** messages are received or not. The on setting allows these messages to be received.

Receive System Exclusive (RcvSysExcl)

Settings: off, on



This determines whether System Exclusive messages are received or not. System Exclusive messages are data specifically (or “exclusively”) related to the MU100R. The On setting allows these messages to be received. This should be to On when receiving bulk data from a MIDI data storage device. (See page 18.)

Receive Bank Select (RcvBankSel)

Settings: off, on



This determines whether Bank Select messages are received or not. Bank Select messages can be sent from another MIDI device to change the banks of Voices on the MU100R. (See page 31.) The On setting allows Bank Select messages to be received.

Contrast

Range: 1 — 8



This determines the contrast of the display. Adjust this as necessary for optimum visibility. (At extreme settings, the display may not be readable.)

Dump Interval (DumpInterval)

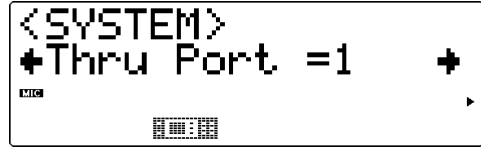
Settings: 50, 100, 150, 200, 300



This determines the length of time the MU100R pauses when sending blocks of data in the Dump Out functions. If the receiving device fails to process the data or displays a “buffer full” type message, try setting this parameter to a higher value and send the data again.

Thru Port

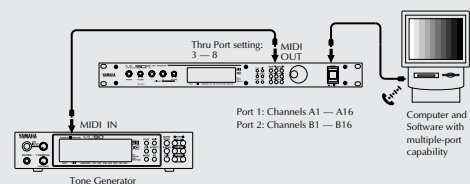
Range: 1 — 8



Some MIDI devices and sequencers are capable of transmitting data over several MIDI “ports,” effectively breaking the 16-channel barrier. When this data is received via the TO HOST terminal on the MU100R, this parameter determines which MIDI port’s data will be routed through the MIDI OUT terminal. This allows you to connect another multi-timbral tone generator to the MU100R and play back data over 48 independent MIDI channels — 32 on the MU100R and another 16 on the connected tone generator.

NOTE

The MU100R can receive Cable messages (F5) when the TO HOST terminal is connected to the serial terminal of a computer. On the MU100R, MIDI receive channels A1 — A16 are controlled from Port 1, and channels B1 — B16 are controlled from Port 2. If the software you are using can address separate MIDI ports, data can be received over 32 channels simultaneously, allowing 32 parts to be played with only one serial cable. By connecting another multi-timbral tone generator to the MIDI OUT terminal of the MU100R and setting the Thru Port function to a value other than 1 or 2, you can play back data over a total of 48 MIDI channels — 32 on the MU100R and another 16 on the connected tone generator.



Display Bank Select (DispBankSel)

Settings: 1 (displays only banks with unique Voices),
2 (displays all banks)



This determines whether the MU100R displays all Voice banks or not when changing banks. (For information on changing banks, see page 28.) When this is set to “1,” the MU100R conveniently skips over banks that have the same Voice. In other words, when you step through the available banks, the display stops only on banks for which the Voice is unique or different (for the selected program number). If “2” is selected, all banks are displayed in succession, regardless of whether the Voices are the same or not. The Display Bank Select setting itself cannot be changed by incoming MIDI messages.

Voice Map (Map)

Settings: MU basic, MU100Native



This determines the Voice configuration or assignment of the XG Voice set of the MU100R. This parameter should be set to match particular types of song data. For playback of data recorded on or intended for the MU90R, MU80, and MU50, set this to “MU basic.” For playback of other GM- and XG-compatible data, as well as the most recent song data (especially that intended for the MU100R), this should be set to “MU100Native.”

NOTES

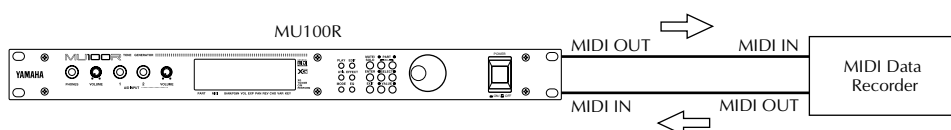
- Only the Voice map of the basic Voice bank (MSB = 0, LSB = 0) is affected by this parameter. The other extended Voice banks are not affected.
- This setting is not affected by incoming XG System On or GM System On MIDI messages.

Dump Out Functions (DUMP)

The Dump Out functions allow you to save the various settings of the MU100R (such as settings for Parts, Performances, system, etc.) to a MIDI sequencer, computer or a MIDI data recorder (such as the Yamaha MDF2 MIDI Data Filer).

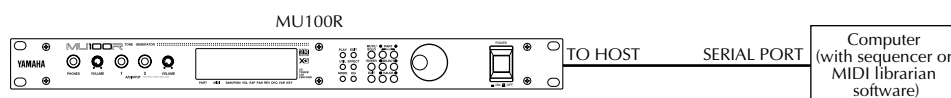
The following illustrations show example connections for the Dump Out functions.

Saving and Restoring Data via MIDI



Bulk Dump data can be sent and received using the MIDI IN and MIDI OUT connections.

Saving and Restoring Data via TO HOST



Bulk Dump data can be sent and received using the MIDI IN and MIDI OUT connections.

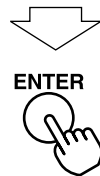
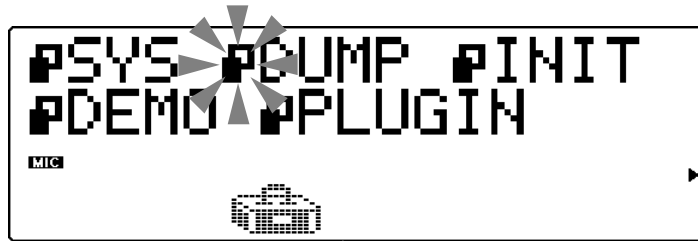
Operation

- 1** Make sure that the MU100R is properly connected to the device and that the HOST SELECT switch is properly set.

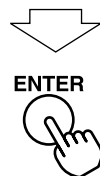
When using the MIDI terminals, connect the MIDI OUT of the MU100R to the MIDI IN of the data recorder. (See the illustrations above.) Also, set the HOST SELECT switch to MIDI.

When using the TO HOST terminal, make sure that the HOST SELECT switch is set corresponding to the device to be used. (Refer to page 19 for more on host computer connections.)

- 2 Press the UTIL button and select "DUMP," then press the ENTER button.



- 3 From the Dump Out menu, select the type of data to be sent: All, Multi or Performance. Then, press the ENTER button to call up the selected data dump.



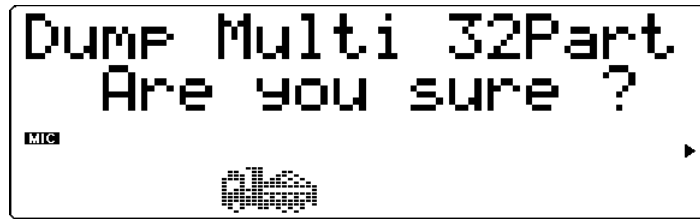
All



This transmits all MU100R data (including Part, Performance, system, and all parameter values) to the connected device.

Multi

Settings: 32 Parts, 16 Parts, 32 Parts + A/D, 16 Parts + A/D



This transmits the selected MU100R Multi Part data (including System, Effect and EQ data) to the connected device. (Use the VALUE \ominus/\oplus buttons to select the type/amount of data to be transmitted.)

Performance (PERFORM)

Settings: ALL, I 001 — I 100 (Internal Performance numbers)



This transmits the selected MU100R Performance data to the connected device. (Use the VALUE \ominus/\oplus buttons or data dial to select the type/amount of data to be transmitted.)

- 4 From the “Are you sure?” prompt, press the ENTER button to execute the operation, or press the EXIT button to cancel it and return to the Dump Out menu.

A “Transmitting...” message appears in the display during the operation. When the transmission is completed, the MU100R returns to the Dump Out menu.

NOTE

If you have more than one MU100R connected in your MIDI system and wish to send different sets of data to each, you can specify a different Device Number for each. (See page 98.) You should set the Device Number on each MU100R you use, before dumping the data to a data storage device. Then, when you reload the data to the connected MU100Rs, each unit will automatically receive only the data that has the corresponding Device Number.

To reload the data from the data recorder back to the MU100R: Make sure that the devices are properly connected (see the **Restoring Data** illustrations on page 18), and execute the appropriate data transfer operation from the data recorder. (Refer to the owner's manual of that device for instructions.) The MU100R automatically receives incoming bulk data.

Initialize Functions (INIT)

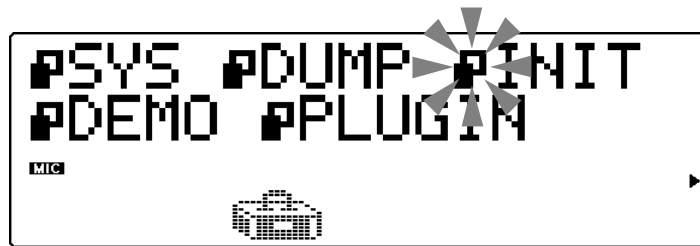
The Initialize functions allow you to restore the factory settings of the MU100R.

NOTE

Since the Initialize functions replace existing data, you should save any and all important settings to a MIDI data storage device before using these functions. (See page 18.)

Operation

- 1 Press the UTIL button and select "INIT," then press the ENTER button.



- 2 From the Initialize menu, select the type of data to be initialized: Factory Settings (FactSet), selected Sound Module mode (XG Init, GM Init, C/MInit, PFMInit) or Drum (DrumInit) Then, press the ENTER button to call up the selected data dump.



Factory Settings (FactSet)



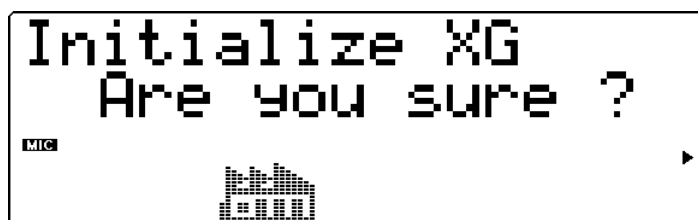
This restores the original factory settings of the MU100R.

NOTE

This function replaces internal performance data to the "Internal Performance 2." To restore the "Internal Performance 1" (loaded at first), load the data from included floppy disk. (Refer to the "Sound List & MIDI Data" booklet.)

Selected Sound Module Mode:

Extended General MIDI (XGInit)



General MIDI (GM Init)



Computer Music (C/MInit)



Performance (PFMInit)



One of the four parameters above will be available, depending on the currently selected Sound Module mode: XG, TG300B, C/M or PFM. Initializing this parameter restores the original settings for the selected mode.

NOTES

- For the PFMInit setting, only the currently selected Performance will be initialized.
- For XGInit and GM Init, the initialized settings are the same as when the MU100R is reset upon receiving an XG System On or GM System On message.

Drum (DrumInit)

Range: DrumS1 — DrumS4



This restores the original drum settings for the selected Drum Setup S1 — S4. (Use the VALUE \ominus/\oplus buttons or data dial to select the desired Drum Setup.)

NOTE

This parameter is not available when the MU100R is set to Performance mode.

- 3 From the “Are you sure?” prompt, press the ENTER button to execute the operation, or press the EXIT button to cancel it and return to the previous display.

An “Executing...” message appears in the display during the operation. When the operation is completed, the MU100R returns to the Initialize menu.

Demo Song Play (DEMO)

The Demo Song function in the Utility menu allows you to play the built-in Demo Song.

Operation

- 1 Press the UTIL button and select "DEMO," then press the ENTER button.



- 2 Press the ENTER button to start the Demo Song.
The Demo Song starts playing immediately and repeats indefinitely until stopped (in step 4 below). Playback of the individual Parts of the song is shown graphically by the "level meter" bars in the display.

NOTE

During Demo Song playback, no panel controls (with the exception of the EXIT button and the VOLUME control) can be used.

- 3 To stop playback of the song, press the EXIT button.



- 4 To exit from the Demo Song function, press the EXIT button again.

VL Voice and Harmony System Parameters (PLUGIN)

VL Voice System Parameters

Path: [UTIL] button → "PLUGIN" → "PLG100-VL"

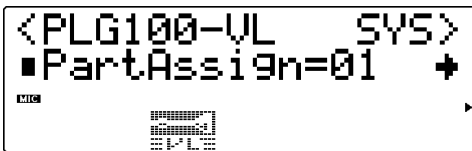
These parameters include assignment of the Part for the VL Voice, as well as other controls that affect overall operation. For more information on the VL Voices and how to use them, refer to page 62.

Part Assign

Settings:

In XG Mode: 01 - 16, off

In Performance Mode: 01 - 04, off



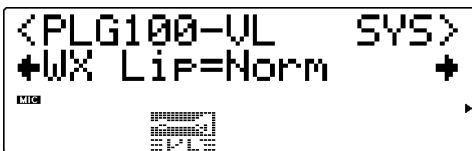
This determines the Part to which the VL Voice is assigned. If a Part is not properly assigned here, none of the VL Voice banks can be selected for the Part.

NOTE

The VL voices cannot be assigned to several Parts at one time since the VL tone generator section is monophonic.

WX Lip Mode

Settings: Norm, Expd



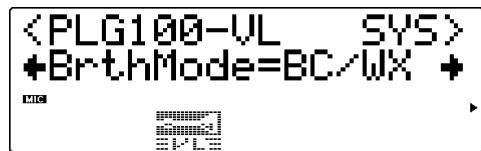
WX-series Wind MIDI Controllers produce pitch bend data ranging from "-16" to "+32" in response to lip (reed) pressure. The WX Lip parameter determines whether these values are used as is ("Norm"), or expanded to a full "-64" through "+63" range ("Expd"). This is also effective for pitch bend data transmitted from devices other than those of the WX-series.

Details

- The "Expd" setting is recommended when using a WX controller in the "tight lip" mode. The "Norm" setting is recommended when using the WX controller "loose lip" mode.
- The settings made here are effective only for the internal VL tone generator.

Breath Mode

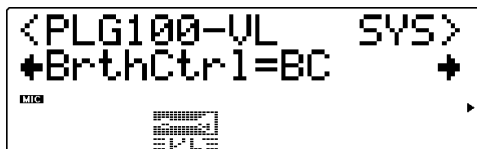
Settings: BC/WX, Vel, TchEG



Sets the control source to be used for "breath" control. This parameter should be set to "BC/WX" when a breath controller or Yamaha WX-series Wind MIDI Controller is being used. When "Velocity" is selected, breath variation is controlled by keyboard initial touch response. When "Touch EG" is selected, breath variation is controlled by a combination of initial keyboard touch response and aftertouch pressure. Initial key velocity sets the initial breath level, and aftertouch pressure determines the shape of the subsequent breath envelope.

Breath Control

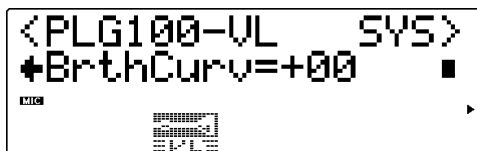
Settings: BC, Exp



This determines the MIDI control change number to be used for breath control of the VL Voice, when breath controller data (number 02) is received via MIDI. When “BC” is selected, control number 02 (breath control) is used. When “Exp” is selected, control number 11 (expression) is used.

Breath Curve

Range: -16 — +16



Determines the relationship between breath controller data (number 02) received via MIDI, and the actual amount of breath variation applied. Negative settings result in a large breath variation with a relatively small amount of breath pressure applied to the controller, while positive settings require a greater range of input breath control values to produce the same degree of breath variation.

Details

- This is also effective for breath controller data transmitted from devices other than those of the WX-series.
- The settings made here are effective only when “BC/WX” is selected for the Breath Mode.

Harmony System Parameters

Path: [UTIL] button → "PLUGIN" → "PLG100-VH"

These parameters include the MIDI channel settings for the harmony and melody. For general information on the Harmony effect and how to use it, refer to the Guided Tour section, page 77.

Harmony Channel (Harmony Ch)

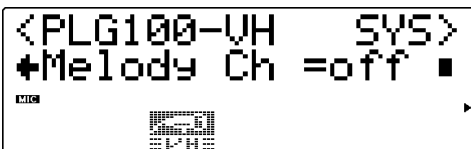
Settings: off, 1 - 16



This determines the MIDI channel over which the Harmony effect is controlled. For example, when this is set to the same value as the MIDI transmit channel of a connected MIDI keyboard and the Vocoder or Chordal Harmony Type is selected (page 147), you can use the keyboard to "play" harmonies. (See page 77.)



Melody Channel (Melody Ch)

Settings: off, 1 - 16

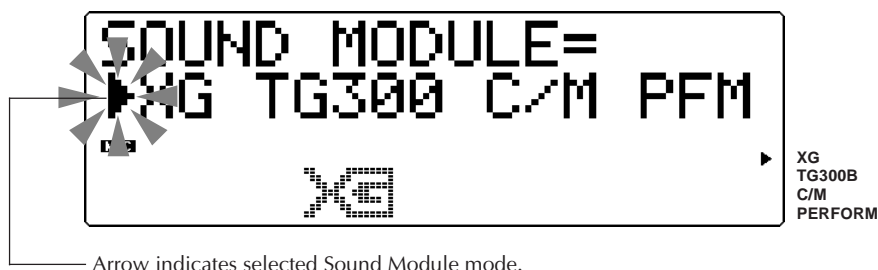


This determines the MIDI channel over which the lead sound of the Harmony effect is controlled. For example, when this is set to the same value as the MIDI transmit channel of a connected MIDI keyboard, you can use the keyboard to control the pitch of the lead sound.

Sound Module Mode (MODE)

This lets you select the operating mode of the MU100R. Press the **MODE** button, then use the **SELECT** / buttons to select the desired Sound Module mode: **XG** (Extended General MIDI), **TG300B** (General MIDI), **C/M** (Computer Music) or **PFM** (Performance). If **XG**, **TG300B** or **C/M** are selected, the MU100R automatically sets itself to the Multi mode. When **PFM** is selected, the MU100R is in the Performance mode. (See page 6.)

The bottom right of the display indicates the currently selected Sound Module mode.



Press the **EXIT** button (or any one of the other mode select buttons: **PLAY**, **EDIT**, **UTIL**, **EFFECT** or **EQ**) to use the MU100R in the current mode.

NOTES

- When the MU100R is not set to the XG mode and an XG System On message is received, the MU100R changes to the XG mode after a slight pause of 0.5 seconds.
- When the TG300B or C/M mode is selected, the VL Voices and Harmony effect cannot be used.
- In the C/M mode, the Voices available in Parts 11 - 16 are different from those available in Parts 1 - 9. (Refer to the "Sound List & MIDI Data" booklet.)
- The TG300B mode also has multiple banks. In the C/M mode, there is only one bank ("Fix" appears at the Bank Number parameter), and for the drum Part only one drum kit can be selected.

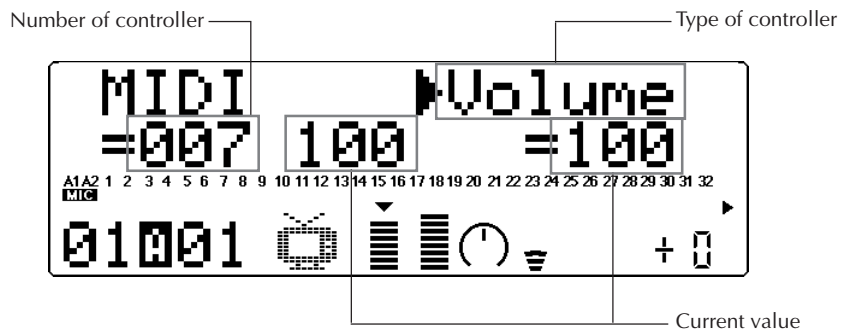
Miscellaneous Functions

Show Control Change

This function allows you to view the currently used control change number, its type and its value (in decimal format). It also lets you transmit the displayed value with a single button press.

Operation

- 1 From the Multi Play mode or Performance Play mode, double-click the ENTER button (press it twice quickly). (The Show Control Change display appears.)



- 2 To transmit the currently displayed message, press the ENTER button again. The message is transmitted via the MIDI or TO HOST terminals.
- 3 Press the EXIT button to return to the Play display.

This is convenient for quickly entering desired settings to a sequencer.

Displaying/Sending Voice Bank Settings

The Show Control Change function also allows you to view and send Voice bank MSB and LSB settings within the XG mode.

To do this:

- 1) From the Multi Play mode (XG mode), select the desired bank number. (For information on selecting banks, see page 28.)
- 2) With the bank number parameter highlighted, double-click the [ENTER] button.



- 3) Press the [EXIT] button to return to the Play display.

NOTE

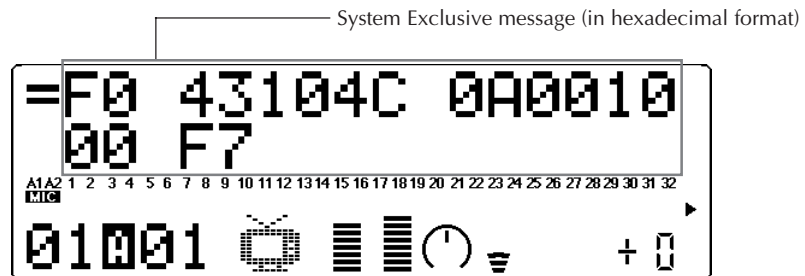
MSB/LSB values are used in conjunction with each other to provide a greater number of banks than would be possible with the 128-number limit of MIDI's hexadecimal system. For example, the XG Voices are contained on banks 000 - 127; these banks are selected over MIDI with the MSB value of 000. MU100 Exclusive Voice banks are at MSB 048. For more information on MSB and LSB values, see page 30.

Show Exclusive

This function allows you to view the current system exclusive message (in hexadecimal format). It also lets you transmit the displayed value with a single button press.

Operation

- 1 Double-click the ENTER button (press it twice quickly). (The Show Exclusive display appears.)



- 2 To transmit the currently displayed message, press the ENTER button again. The message is transmitted via the MIDI or TO HOST terminals.
- 3 Press the EXIT button to return to the previous display.



APPENDIX

Troubleshooting

Even though the MU100R is exceptionally easy to use, it may occasionally not function as you expect it to. If that happens, check the possible problems and solutions below before assuming that the instrument is faulty.

Problem	Possible Cause and Solution
No power.	If you are using an AC adaptor, check that the adaptor is properly plugged into both the AC outlet and the MU100R (See page 3.)
No sound.	Check that: <ul style="list-style-type: none"> • The panel volume control is set to an appropriate level. • Other volume-related parameters are set to appropriate levels. (See Volume and Expression in the Single Part controls, page 96, and Master Volume and Master Attenuator in the All Part controls, page 98.) • Mute or Solo are not active. (See page 85.) If a Part is being muted, or an empty Part is being soloed, you may not get any sound. • The Variation effect settings are appropriate. No sound will be output at all if Variation Connection is set to INS (page 145), Variation Send is turned on for the Part (page 97), and NO EFFECT is selected for the Variation Type (page 144). The easiest solution in such a case is to turn off Variation Send for the Part. • The EG Attack Time (page 103) is appropriately short, for short percussive sounds. • The Velocity Sensitivity Offset (page 111) is appropriate. • The Note Limit Low and Note Limit High (pages 110, 136) settings are appropriate. If the former is set higher than the latter, no sound will be output. • The Velocity Limit Low and Velocity Limit High (pages 111, 136) settings are appropriate. If the former is set too high and the latter too low, no sound may be output.
No sound when playing the MU100R from a computer, sequencer or external keyboard.	Check all MIDI connections, making sure that the MIDI OUT of the external device is connected to the MIDI IN of the MU100R, and that the MIDI IN of the external device is connected to the MIDI OUT of the MU100R. (See pages 17 – 19.) Or, if you are using the TO HOST terminal with a computer, make sure that the terminal is properly connected to the computer and that the HOST SELECT switch is properly set for your particular computer. (See pages 19 – 22.) Also, make sure that you have turned on the connected MIDI instrument or computer before turning on the MU100R. If you haven't, simply turning the MU100R off and back on again may solve the problem.
Notes are cut off or omitted.	The maximum polyphony of the MU100R may be exceeded. The MU100R can play no more than 64 notes at once. (Though 64 notes may seem to be more than enough, you may run short when playing a connected keyboard along with some densely arranged song data.)
Reverb, Chorus and/or Variation effects cannot be heard.	Check all Reverb-, Chorus- and Variation-related controls: Reverb Send, Chorus Send and Variation Send in Single Part controls (page 97); Reverb Return, Chorus Return and Variation Return (when Variation Connection is set to SYS) in All Part controls (pages 98 – 99). Also check the individual effect settings; if no Type has been selected, or if the parameter settings are too low, there may be no effect sound.
The A/D input sound (mic, guitar, etc.) cannot be heard.	Make sure that the appropriate A/D Part (A1 or A2) has been turned on and that the A/D INPUT control is set to an appropriate level. Also for best results, make sure that the A/D input type (Mic, Guitar, Keyboard, Audio) is set to match the input you are using.
<div>VL Voice Section/ Harmony Effect</div> <div>The VL Voices and/ or Harmony effect cannot be used.</div>	<div>Check the following points:</div> <ul style="list-style-type: none"> • The VL Voices and Harmony effect can only be used in the XG or Performance modes. • The VL Voice must be assigned to a Part in the Part Assign parameter (page 169), and the Harmony effect must be assigned to a Part in the Insert Part parameter (page 151). • The VL Voices can only be used with Parts 1 – 16. • When using MIDI, the VL Voices and Harmony effect can only be controlled via the MIDI-A terminal. When using TO HOST, they can only be controlled via MIDI port 1.
<div>Other notes on VL Voices and Harmony effect:</div>	<ul style="list-style-type: none"> • The VL Voices and Harmony effect can be used in the Performance mode; however, the Store operation saves only edits made from the panel controls, and not any of the “hidden” parameters accessible via MIDI. • When controlling certain VL Voice and Harmony effect parameters via MIDI, the value or setting displayed in the LCD may not change, even though the actual value does. • Any edits made to the “hidden” VL Voices/Harmony effect parameters (accessible only via MIDI) are not saved; turning off the power automatically cancels these settings. • When backing up VL Voice and Harmony effect data via MIDI, the time it takes for the data transfer may be quite long. Be careful not to turn off the power or disconnect the AC adaptor until the operation is completed.

Problem	Possible Cause and Solution
About VL Section Some voices sound as if they are in the original octave even when shifted down an octave.	This is because Virtual Acoustic synthesis accurately simulates the acoustic behaviour of a pipe or string. Simply stated, the harmonic balance of the voice when played in the normal octave is retained even when the voice is shifted down an octave. The change in timbre can be greater or less, depending on the selected voice.
Portamento produces more of a glissando effect on some voices.	Trumpets and some other brass instruments tend to exhibit this phenomenon more than others. In a VA tone generator portamento is produced by lengthening or shortening the instrument's pipe or string and changing the Embouchure. A trumpet is designed to emphasize the "modes" of the pipe(s) to produce notes over a wide range using only three valves. When portamento is applied to a trumpet voice, the pitch tends to jump from mode to mode, thus producing the observed glissando effect. The same effect occurs with some flute voices. Saxophone modes are not nearly as strong as trumpet modes, but some sax voices do have two definite modes which, when spanned by a portamento slide, can produce irregularities.
The filter, EG, and other parameters have more effect on some voices than others.	Most voices use the low-pass filter type, but some use the bandpass, high-pass, or band eliminate types. Some voices use very little filter processing at all. Changing the filter settings may not produce a particularly noticeable effect. Also the internal Breath Noise, Throat Formant, Growl, Harmonic Enhancer and Pitch EG parameter settings can have a significant effect on how much the parameters accessible via the VL section controls actually affect the sound.
Some bowed string instrument voices tend to "squeek".	As anyone who has played (or tried to play) a real violin knows, these instruments naturally tend to squeek if not properly controlled. The same occurs with VA synthesis. As with a real bowed string instrument, bow speed and pressure must be properly controlled in the VL section to produce the desired sound. Bow speed is usually controlled either via breath control or an expression pedal. Bow pressure is controlled via control number 13: "64" is medium pressure, lower values produced reduced bow pressure, and higher values produce increased bow pressure.
Pitch bends produced by a pitch bend wheel are not always accurate.	Natural acoustic musical instruments have no "pitch parameter". Pitch is determined by the properties of the instrument's resonant body as well as the condition of the instrument's driver. The same applies to Virtual Acoustic Synthesis: in the VL section's pitch bend is simulated by manipulating the appropriate pipe/string length and driver characteristics. As a result, the pitch bend range may not always be "mathematically" accurate. With reed instruments such as saxophone or clarinet, highly realistic pitch bends are produced by controlling both pitch and embouchure at the same time. Since the embouchure component of the pitch bend behaves with characteristics acoustic unpredictability, precise pitch bends are not always produced.
Some voices don't respond as expected to EG edits.	The effect of editing envelope generator parameters may not always be as expected — particularly with plucked string instrument voices such as guitar or bass. This is because the VL section actually simulates the plucking, free oscillation, and muting of the strings rather than simply using an EG to approximate these events. If the sound of a string voice decays naturally, for example, setting a long release time will have little or no effect on the actual sound of the voice. Since the attack and decay portions of the voice also have natural timbre variations, these can be unnaturally altered by inappropriate EG settings — which is OK if you're trying to produce an unnatural effect. Trial and experimentation and the only sure ways to determine how the EG parameters are going to affect a particular voice.
The VL section is a monophonic tone generator. Why is the "poly" mode initially selected when the VL-XG sound module mode is engaged?	This is to provide compatibility between the current XG format and future polyphonic VL-series tone generators. It also provides a certain degree of compatibility to allow playback of VL-XG song data on existing tone generators which do not feature the VL-XG extension. Specifically, to switch the VL section to the mono mode a "mono mode" command (control change no.126, value 0-16) is embedded in the song data which, when received by a 32-note or 64-note polyphonic XG tone generator, switches the appropriate parts to the mono mode. The same will apply to future polyphonic VL-series tone generators, so no changes will be required. The VL section therefore has a "poly" which is automatically selected when a MIDI "XG on" system exclusive message is received.

Error Messages

Battery Low!

The battery voltage (for internal memory backup) may be too low. Bring the unit to your local Yamaha dealer or any other authorized Yamaha service personnel.

Illegal Data!

A data error resulted during reception of MIDI messages. Try transmitting the data again, or turn the MU100R off and back on again.

MIDI Buffer Full!

Too much MIDI data is being received by the MU100R at one time. Reduce the amount of data being sent to the MU100R.

HOST is OffLine!

This message appears when the host computer is not turned on, the connecting cable is not properly connected, or the sequencing software is not active.

SysEx Adrs ERROR!

The data of the received System Exclusive message is incorrect. Check the address of the message and try transmitting again.

SysEx Data ERROR!

The data of the received System Exclusive message is incorrect. Check the data of the message (as to whether it requires an MSB or LSB header) and try transmitting again.

SysEx Size ERROR!

The data of the received System Exclusive message is incorrect. Check the size of the message and try transmitting again.

Check Sum ERROR!

The checksum of the received System Exclusive message is incorrect. Check the checksum of the message and try transmitting again.

This Parameter isn't Excl Data

The selected parameter has no System Exclusive value and cannot be displayed with the Show Exclusive function.

No Parameter

The selected parameter for use with the Show Exclusive function does not exist as a valid parameter.

Rcv CH is OFF!

The selected parameter for use with the Show Exclusive function cannot be converted to a MIDI message value since the Receive Channel for the Part is off. Set the Receive Channel to an appropriate value.

Specifications

Tone Generation Method

AWM2 (Advanced Wave Memory 2), Virtual Acoustic Synthesis System (VL)

Maximum Simultaneous Polyphony

64-note + 1-note (VL)

Sound Module Modes

XG (Extended General MIDI), TG300B, C/M, and Performance

Multi-timbral Capacity

32-Part (on 32 MIDI channels; with element reserve priority for later notes and dynamic Voice allocation)

Internal Voice/Program Structure

Normal Programs

Total Voices	1267 + 256 (VL)
XG mode	1074 + 256 (VL)
TG300B mode	614
C/M mode	128 (Parts 1 — 9), 64 (Parts 11 — 16)

Drum Programs

Total Programs	46
XG mode	36
TG300B mode	10
C/M mode	1

Performance Programs

Up to four Voices plus all effect settings can be memorized to a Performance.	
Preset Programs	100
User Programs	100




Effects

Six sections of multi-effects: Reverb (12 Types), Chorus (14 Types), Variation (70 Types), Insertion 1, 2 (43 Types), Harmony (4 Types), Effect and EQ (4 Types)

Display

Custom back-lit LCD

Controls

VOLUME control; A/D INPUT level control; Mode select buttons: PLAY, UTIL (UTILITY), MODE, EDIT, EFFECT, EQ; other buttons: MUTE/SOLO, ENTER, EXIT, PART , SELECT , VALUE ; data dial; POWER button

Jacks and Terminals

Front panel: PHONES jack (1/4"), A/D INPUT 1, 2 jacks (1/4"),
 Rear panel: INDIVIDUAL OUTPUT 1, 2 jacks; OUTPUT R, L/MONO jacks (Right, Left/Mono); DC IN jack; TO HOST terminal; HOST SELECT switch; MIDI IN A/B, MIDI OUT, and MIDI THRU terminals

Computer/MIDI Interface

Direct connection to host computer port (RS-232C, RS-422) with optional cables (CCJ-PC1, CCJ-PC1, CCJ-MAC); MIDI terminals allow connection to MIDI sequencer or MIDI controller

Data Transfer (Baud) Rate

MIDI — 31,250 bps (bits per second)
 Mac — 31,250 bps
 PC-1 — 31,250 bps
 PC-2 — 38,400 bps

Power Supply

Yamaha PA-5B AC Adaptor (included)

Dimensions (W × D × H)

483 × 229 × 44 mm (19" × 9" × 1-3/4")

Weight

2.4 kg (5 lbs., 5 oz.)

Included Accessories

Owner's Manual, Yamaha PA-5B AC Adaptor
 Floppy Disk

** Specifications subject to change without notice.*

Glossary

A/D input Abbreviation for analog-to-digital. The A/D inputs of the MU100R allow you to process analog inputs (such as a microphone, electric guitar, CD player, or another electronic instrument) with the digital effects of the MU100R and mix them with the internal Voices.

Assignable Controller 1 Certain functions on the MU100R (such as the Filter, Volume or Variation effect) can be changed in real time by controllers on a connected MIDI instrument. Assignable Controller 1 lets you determine which controller (for example: modulation wheel, breath controller, foot controller, etc.) is used for that purpose.

AWM2 Abbreviation for Advanced Wave Memory 2, an enhanced version of Yamaha's original tone generation system, featuring digital filters for superior sound.

bank A set of Voices or programs. The MIDI standard supports up to 128 banks, each of which can contain up to 128 Voices or programs.

edit Editing is the process of changing or adjusting the settings of the MU100R.

EG Abbreviation for Envelope Generator, a common control on electronic instruments that affects the "shape" (or envelope) of the sound in time. The MU100R provides two types of EGs: one for level and the other for pitch.

Filter A control for affecting the frequency content of a sound. Filters are used to selectively cut or boost certain frequency ranges in the sound — subtly enhancing the sound, or dramatically changing its character. On the MU100R, the Filter can be controlled in real time with the Assignable Controller 1.

General MIDI (GM) An addition to the MIDI standard which effectively ensures that any General MIDI-compatible song data can be properly played back on any General MIDI-compatible tone generator. The standard specifies that a GM-compatible tone generator must have at least 24-note polyphony, 16-part multi-timbral capacity and 128 standard voices. The MU100R exceeds this with 64-note polyphony, 32-part multi-timbral capacity and 1523 Voices.

host computer The controlling computer in a computer music system. The host computer is connected to the MU100R (via the TO HOST or MIDI terminals) and runs the software necessary for recording and playing back song data, which is reproduced by the internal sound sources and effects of the MU100R.

LFO Abbreviation for low frequency oscillator, which generates a low frequency signal that is used to modulate certain aspects of the sound, such as pitch or level. Chorus, Flanger, Tremolo, Vibrato and other modulation effects use LFOs.

MIDI Acronym for Musical Instrument Digital Interface, a worldwide standard that allows MIDI-compatible instruments and devices to communicate with each other. For the instruments to communicate, they normally must be set to the same MIDI channel.

modulation wheel A controller found on most MIDI keyboards which is normally used to control pitch and other types of modulation. It can be used to control various aspects of the MU100R sound by proper setting of the Assignable Controller 1. (See page 53.)

multi-timbral This refers to the capacity of a tone generator to produce several different sounds at once. The MU100R is a 32-Part multi-timbral tone generator, capable of playing 32 different instrument Voices at once, each over an independent MIDI channel.

Mute The Mute function of the MU100R allows you to silence one Part to hear how all of the other Parts sound without it.

parameter The word "parameter" refers to any adjustable setting of an electronic musical instrument. For example, the Vibrato function of the MU100R has three parameters: Rate, Depth, and Delay.

Part The Voices of the MU100R are assigned to separate Parts, and up to 32 of these Parts can sound simultaneously. Parts are analogous to the various instrumental parts in music: e.g., piano part, guitar part, etc.

Performance In the MU100R, “Performance” refers to an operation mode and the programs that are used in that mode. A Performance can contain up to four different Parts, all controllable over the same MIDI channel. The preset Performances of the MU100R are special multi-Part sound programs designed particularly for live performance and studio recording purposes.

Pitch Bend A function found on virtually all MIDI keyboards (usually controlled with a pitch bend wheel) that allows the pitch to be raised or lowered continuously. The Pitch Bend Control parameter on the MU100R allows you to set the range over which the pitch can be changed.

polyphony The number of notes that can be sounded simultaneously by an electronic instrument. The MU100R has 64-note polyphony, ensuring that even the most complex song data will play back completely and accurately, with no “note robbing.”

port To answer the need for more MIDI channels (the limit is 16), many MIDI interfaces offer two or more MIDI ports, each of which can address 16 MIDI channels. The MU100R is equipped with two independent MIDI ports (A and B), providing 32-channel operation. The two ports are also addressable via the TO HOST computer interface.

Portamento A function found on early synthesizers that creates a continuous pitch glide between successively played notes. On the MU100R, the time of the pitch glide can be adjusted.

return Related to effect operation, “return” refers to the effect-processed signal that is returned to the overall sound mix. For example, the parameter Reverb Return determines the amount of Reverb-processed signal that is blended with the overall sound mix of the MU100R. (“Return” is the companion function of “send” below.)

send Related to effect operation, “send” refers to the signal that is sent to an effect for processing. For example, the parameter Reverb Send determines the degree to which an individual Part is processed with the Reverb effect. (“Send” is the companion function of “return” above.)

sequencer A device used for recording, editing and playing back of MIDI data. Sequencers are generally of two types: “dedicated” sequencer units, and computer-based sequencing software. The MU100R can be used with either type.

Solo The Solo function of the MU100R allows you to isolate a single Part, to hear how that Part sounds by itself.

Sound Module mode The MU100R has four Sound Module modes, and these determine the basic operation of the unit as a tone generator. Three Multi modes (XG, TG300B and C/M) and one Performance mode (PFM) are available.

tone generator An electronic instrument that functions as a MIDI-controllable sound source. For the most part, the term “tone generator” refers to those devices that have no keyboard or other controller, but are meant to be connected to and played from a separate keyboard or computer.

Variation In the MU100R, “Variation” refers to the special section of various effects, including Reverb, Delay, Chorus, and many others. The Variation effects total 70, and can be used simultaneously with the other effect sections of the MU100R: Reverb, Chorus, Insertion 1, 2 Harmony Effect and EQ.

velocity The speed at which a note is played (for example, on a keyboard). Normally, the faster (or harder) a key is struck, the higher the corresponding note’s velocity — and, hence, the louder the sound produced. The MU100R features a variety of velocity-related parameters that provide extensive control over the velocity response of the Voices, and even allow you to set up sophisticated velocity splits, in which the Voices change in response to playing velocity.

Vibrato Vibrato is a quavering, vibrating sound, and is produced in the MU100R by regularly modulating the pitch of a Voice. The speed and depth of the Vibrato can be adjusted, as well as the time it takes before the Vibrato effect is applied.

Voice The basic sound unit (or sound program) of the MU100R. There are a total of 1523 Voices available on the MU100R.

XG-MIDI An abbreviation for Extended General MIDI, a new standard created by Yamaha which significantly improves on the General MIDI standard by providing a greater variety of high-quality Voices and enhanced effect operation.

Index

A

A/D input	87
A/D Part	87, 133
A/D Part Lock	157
Absorption Control Change Number	124
Absorption Control Depth	125
All Part control	35, 98, 128
Alternate Group (Drum Setup)	117
Assignable Controller 1	53, 112, 133
Assignable Controller 1 Amplitude Control	113, 133
Assignable Controller 1 Control Change Number	112, 133
Assignable Controller 1 Filter Control	112, 133
Assignable Controller 1 Insertion 1/2 Control	146
Assignable Controller 1 LFO Filter Modulation Depth	133
Assignable Controller 1 Variation Control	145

B

Bank (Performance mode)	24, 128–129
Bank Number (Multi mode)	27, 96
Breath Control	170
Breath Curve	170
Breath Mode	169
Breath Noise Control Change Number	122
Breath Noise Control Depth	122

C

C/M mode	6
Chordal Type	147
Chorus	143
Chorus Pan	143
Chorus Return (Multi mode)	98
Chorus Return (Performance mode)	128
Chorus Send (Drum Setup)	116
Chorus Send (Multi mode)	97
Chorus Send (Performance mode)	130
Chorus Type	143
Chromatic Type	148
Common parameters	131
computer, connecting cables	19
computer, connecting MU100R with	19
computer, IBM PC and clones	21
computer, Macintosh	19
connections, audio	12
connections, MIDI	17
Contrast	159
Copy	137

D

Damping Control Change Number	124
Damping Control Depth	124
Demo song	15, 168
Detune	108, 136

Detune Type	148
Device number	98
Display Bank Select	160
Drum Setup controls	114
Dry Level	110, 136
Dry/Wet (Variation)	145
Dry/Wet Balance (Insertion)	146
Dump Interval	159
Dump Out functions	161

E

Effect Edit mode	141
effect connections (System and Insertion)	152
EG (Envelope Generator)	102, 135
EG Attack (Drum Setup)	117
EG Attack Time	103
EG Decay 1 (Drum Setup)	117
EG Decay 2 (Drum Setup)	117
EG Decay Time	103
EG Release Time	104
Element Reserve	109
Embouchure Control Change Number	120
Embouchure Control Depth	121
EQ Frequency parameters	155
EQ High Frequency	105, 117
EQ High Gain	105, 117
EQ Low Frequency	105, 117
EQ Low Gain	105, 117
EQ Type	155
Equalizer (EQ)	80, 105, 135, 155
Expression	97

F

Filter	100, 135
Filter EG Depth	120

G

Growl Control Change Number	122
Growl Control Depth	123

H

Harmonic Enhancer Control Change Number	123
Harmonic Enhancer Control Depth	124
Harmony Channel	171
Harmony Parameters	147
Harmony Gender Type	149
Harmony Type	147
HPF Cutoff Frequency (Drum Setup)	116
HPF Cutoff Frequency (Multi mode)	101

I

Individual outputs	3, 83
Initialize functions	165
Insert Part	151

Insertion connection	145, 152
Insertion 1, 2 effects	146
Insertion Part	146
Insertion Type	146

L

Lead Gender Depth	150
Lead Gender Type	150
Lead Pitch Correction	151
Lead/Harmony Balance	151
Level (Drum Setup)	115
LPF Cutoff Frequency (Drum Setup)	116
LPF Cutoff Frequency (Multi mode)	101
LPF Resonance (Drum Setup)	116
LPF Resonance (Multi mode)	101

M

Master Attenuator	98
Master Tune	157
Master Volume	98
Melody Channel	171
MIDI channel	96, 128
MIDI data flow (diagram)	91
MIDI data storage device	18
MIDI devices, connecting to	17
MIDI keyboard, playing the MU100R with	17
MIDI keyboard, selecting Voices with	31
MIDI, Receive Channel	96, 128
MIDI, Receive Port	96
Modulation Wheel —	
LFO Filter Modulation Depth	133
Modulation Wheel —	
LFO Pitch Modulation Depth	112, 132
Mono/Poly Mode	109, 136
MU100 Exclusive Voice	30
Multi Edit mode	100
Multi mode	85
Multi Mode Equalizer Lock	157
Mute	85
Mute Lock	157

N

Note Limit High	110, 136
Note Limit Low	110, 136
Note Shift (Multi mode)	97
Note Shift (Performance mode)	130

O

Others parameters	107, 135
Output Select (Drum Setup)	118
Output Select (Multi mode)	113
Output Select Lock	158

P

Pan (Drum Setup)	115
Pan (Multi mode)	97
Pan (Performance mode)	130
Part Assign	169

Part Mode	108
Parts, selecting	27
Performance Bank	128
Performance Edit mode	131
Performance mode	43, 127
Performance Name	132
Performance Number	128
Performance Pan	128
Performance Part control	128
Performance Volume	128
Performances, selecting Preset or Internal	24
Pitch Bend Control	111, 133
Pitch Coarse (Drum Setup)	115
Pitch EG	104
Pitch EG Attack Time	104
Pitch EG Initial Level	104
Pitch EG Release Level	104
Pitch EG Release Time	104
Pitch Fine (Drum Setup)	115
Plugin	119, 136, 147, 169
Portamento Switch	109, 132
Portamento Time	109, 132
Pressure Control Change Number	120
Pressure Control Depth	120
Program (Voice) Number (Multi mode)	96
Program (Voice) Number (Performance mode) ...	129

R

Recall Function	140
Receive Bank Select	158
Receive General MIDI Exclusive	158
Receive Note Off (Drum Setup)	118
Receive Note On (Drum Setup)	118
Receive System Exclusive	158
Resonance (LPF; Drum Setup)	116
Resonance (LPF; Multi mode)	101
Reverb	142
Reverb Pan	142
Reverb Return (Multi mode)	98
Reverb Return (Performance mode)	128
Reverb Send (Drum Setup)	115
Reverb Send (Multi mode)	97
Reverb Send (Performance mode)	130
Reverb Type	142

S

Scream Control Change Number	121
Scream Control Depth	122
Send Chorus to Reverb	133
Send Variation to Chorus	145
Send Variation to Reverb	145
Show Control Change	173
Show Exclusive	174
Single Part control (Multi mode)	33
Single Part control (Performance mode)	129
Solo	85
Sound Module mode	6, 172
Store	138
System connection	153
System functions	157

System MIDI Channel	128
System Transpose	129

T

TG300B mode	6
Throat Formant Control Change Number	123
Throat Formant Control Depth	123
Thru Port	159
Tonguing Control Change Number	121
Tonguing Control Depth	121
Transpose	99

U

Utility mode	156
--------------------	-----

V

Variation	144
Variation Connection	145
Variation Pan	145
Variation Return (Multi mode)	99
Variation Return (Performance mode)	129
Variation Send (Drum Setup)	116
Variation Send (Multi mode)	97
Variation Send (Performance mode)	130
Variation Type	144
Velocity LPF Cutoff Frequency	116
Velocity Limit High	111, 136
Velocity Limit Low	111, 136
Velocity Pitch Sensitivity	115
Velocity Sensitivity Depth	110, 136
Velocity Sensitivity Offset	111, 136
Vibrato	106, 135
Vibrato Delay	106
Vibrato Depth	106
Vibrato Rate	106
Virtual Acoustic Synthesis	62
VL Voice	62
VL Voice Part Parameters	119
Vocoder Type	147
Voice Map	160
Voices, selecting	26
Volume (Multi mode)	96
Volume (Performance mode)	128, 130

W

WX Lip Mode	169
-------------------	-----

X

XG mode	6, 26
---------------	-------

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TURKEY/CYPRUS

Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen,
F.R. of Germany
Tel: 04101-3030

OTHER COUNTRIES

**Yamaha Corporation,
International Marketing Division**
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2312

ASIA

HONG KONG

Tom Lee Music Co., Ltd.
11/F., Silvercord Tower 1, 30 Canton Road,
Tsimshatsui, Kowloon, Hong Kong
Tel: 730-1098

INDONESIA

**PT. Yamaha Music Indonesia (Distributor)
PT. Nusantara**
Gedung Yamaha Music Center, Jalan Jend. Gatot
Subroto Kav. 4, Jakarta 12930, Indonesia
Tel: 21-520-2577

KOREA

Cosmos Corporation
#131-31, Neung-Dong, Sungdong-Ku, Seoul
Korea
Tel: 02-466-0021-5

MALAYSIA

Yamaha Music Malaysia, Sdn., Bhd.
16-28, Jalan SS 2/72, Petaling Jaya, Selangor,
Malaysia
Tel: 3-717-8977

PHILIPPINES

Yupangco Music Corporation
339 Gil J. Puyat Avenue, P.O. Box 885 MCPO,
Makati, Metro Manila, Philippines
Tel: 819-7551

SINGAPORE

Yamaha Music Asia Pte., Ltd.
Blk 17A Toa Payoh #01-190 Lorong 7
Singapore 1231
Tel: 354-0133

TAIWAN

Kung Hsue She Trading Co., Ltd.
No. 322, Section 1, Fu Hsing S. Road,
Taipei 106, Taiwan. R.O.C.
Tel: 02-709-1266

THAILAND

Siam Music Yamaha Co., Ltd.
865 Phornprapha Building, Rama I Road,
Patumwan, Bangkok 10330, Thailand
Tel: 2-215-3443

THE PEOPLE'S REPUBLIC OF CHINA AND OTHER ASIAN COUNTRIES

**Yamaha Corporation,
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OCEANIA

AUSTRALIA

Yamaha Music Australia Pty. Ltd.
17-33 Market Street, South Melbourne, Vic. 3205,
Australia
Tel: 3-699-2388

NEW ZEALAND

Music Houses of N.Z. Ltd.
146/148 Captain Springs Road, Te Papapa,
Auckland, New Zealand
Tel: 9-634-0099

COUNTRIES AND TRUST

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